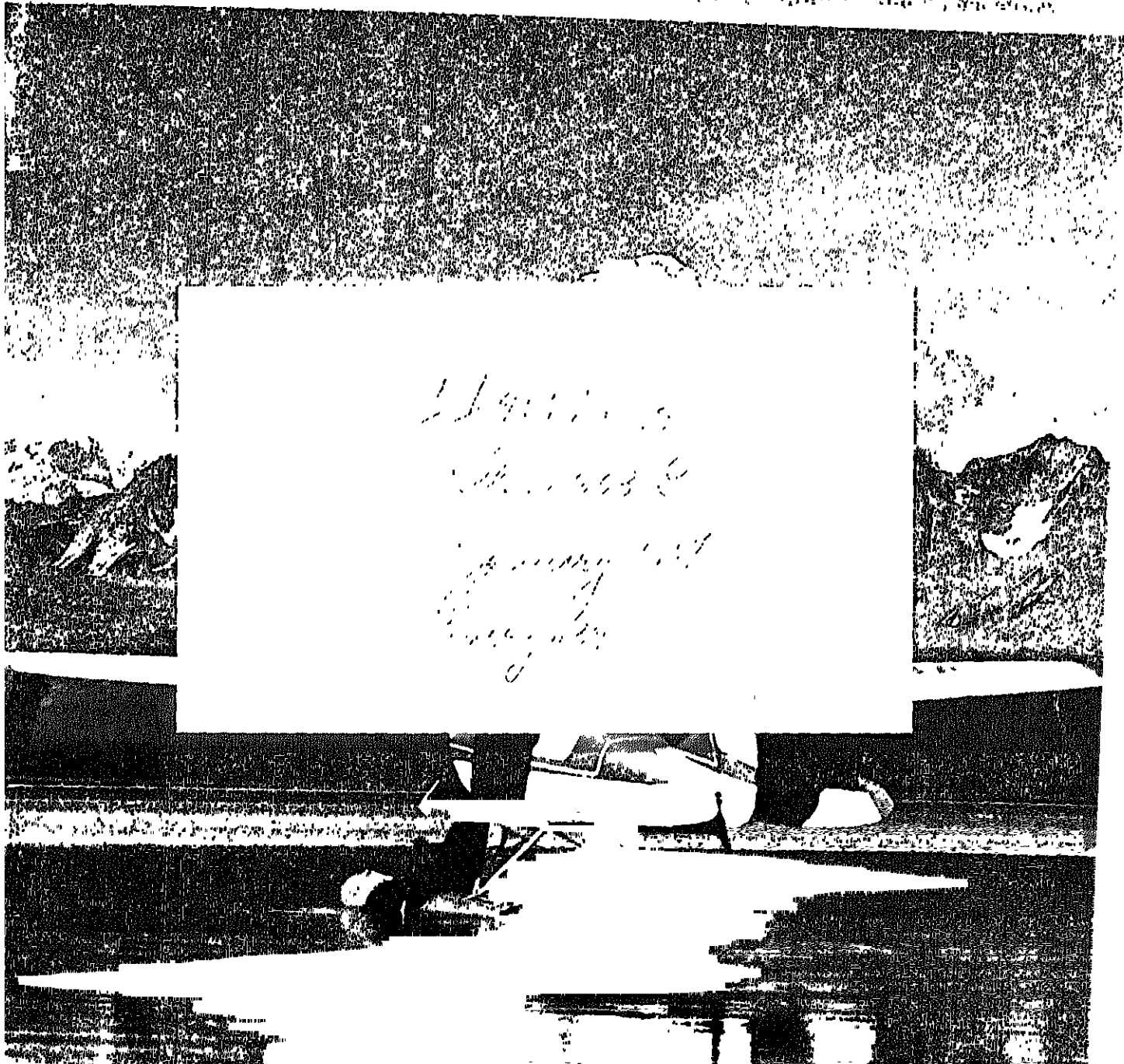
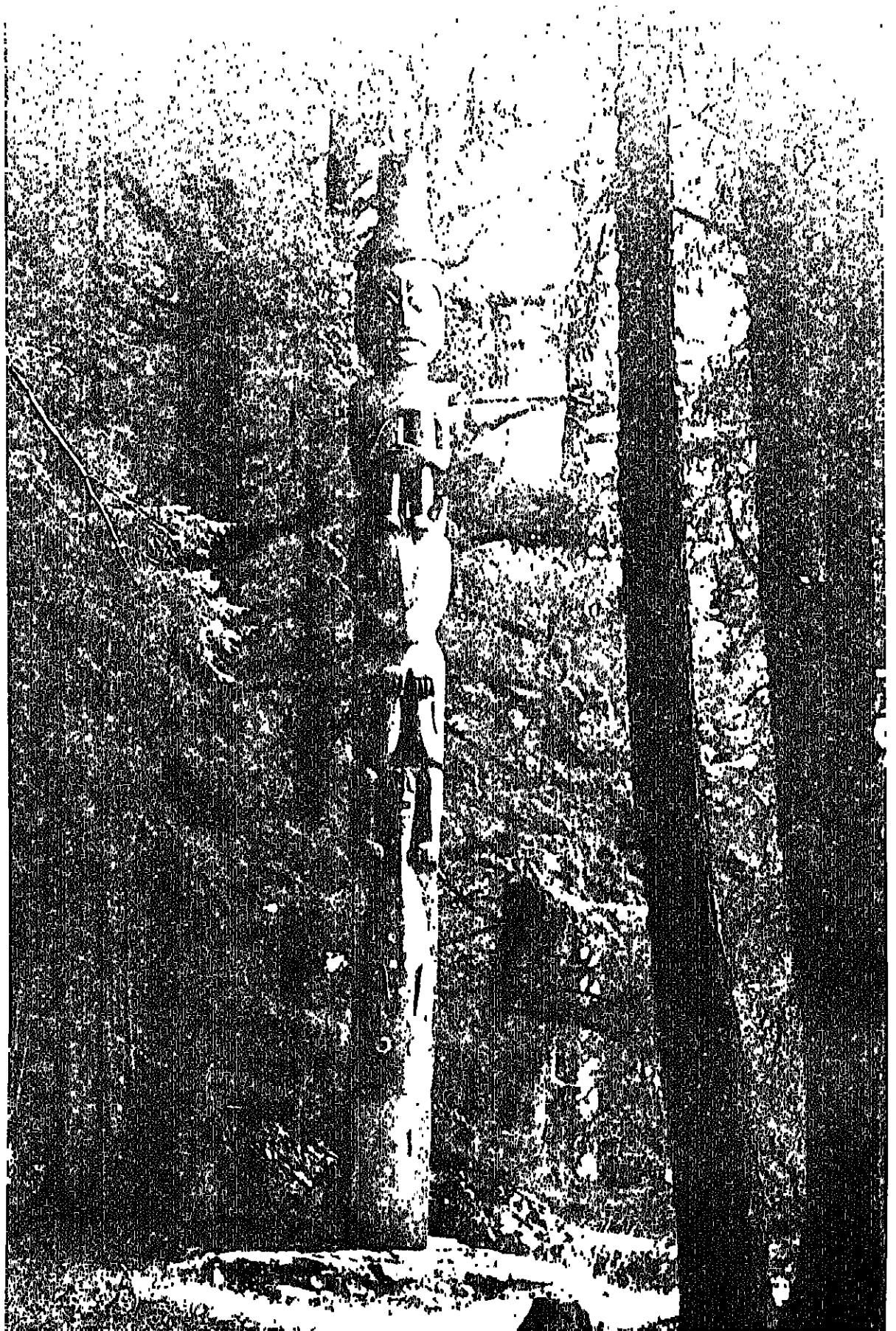


# Natural Resources of

# ALASKA

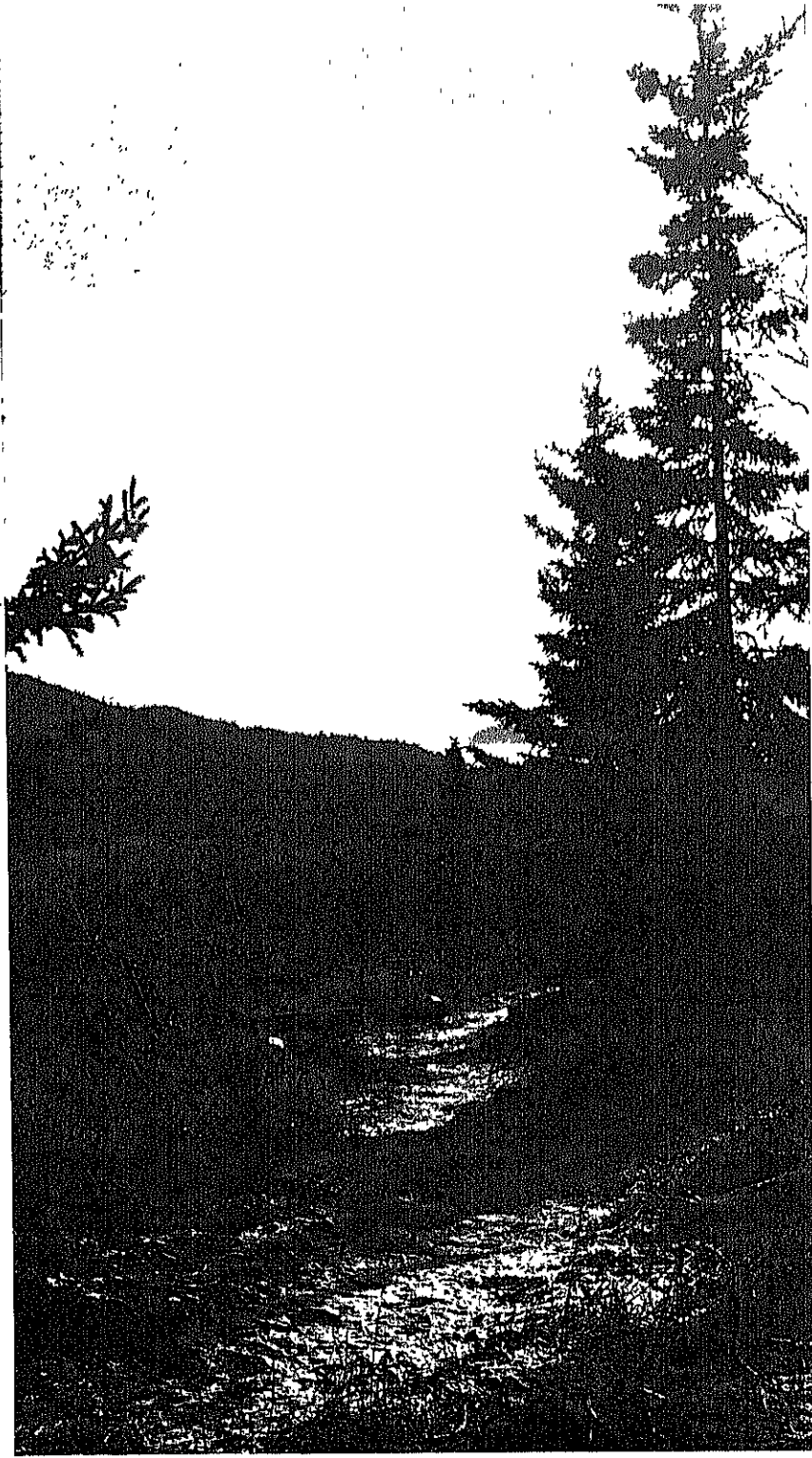
Prepared by the U.S. Geological Survey and the Interior Department, Alaska Division





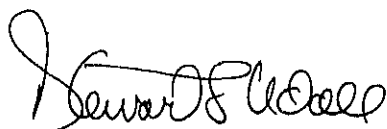
# **Natural Resources of Alaska**

**Published by the • United States Department of the Interior • Office of the Secretary • Office of Information**



Wilderness trails on the Kenai Peninsula

The purpose of this booklet is to bring a new awareness on the part of the American people of our rich natural resource heritage, its history, its present, and its future. To know our land is to love it and cherish it and protect it from the ravages both of nature and man.

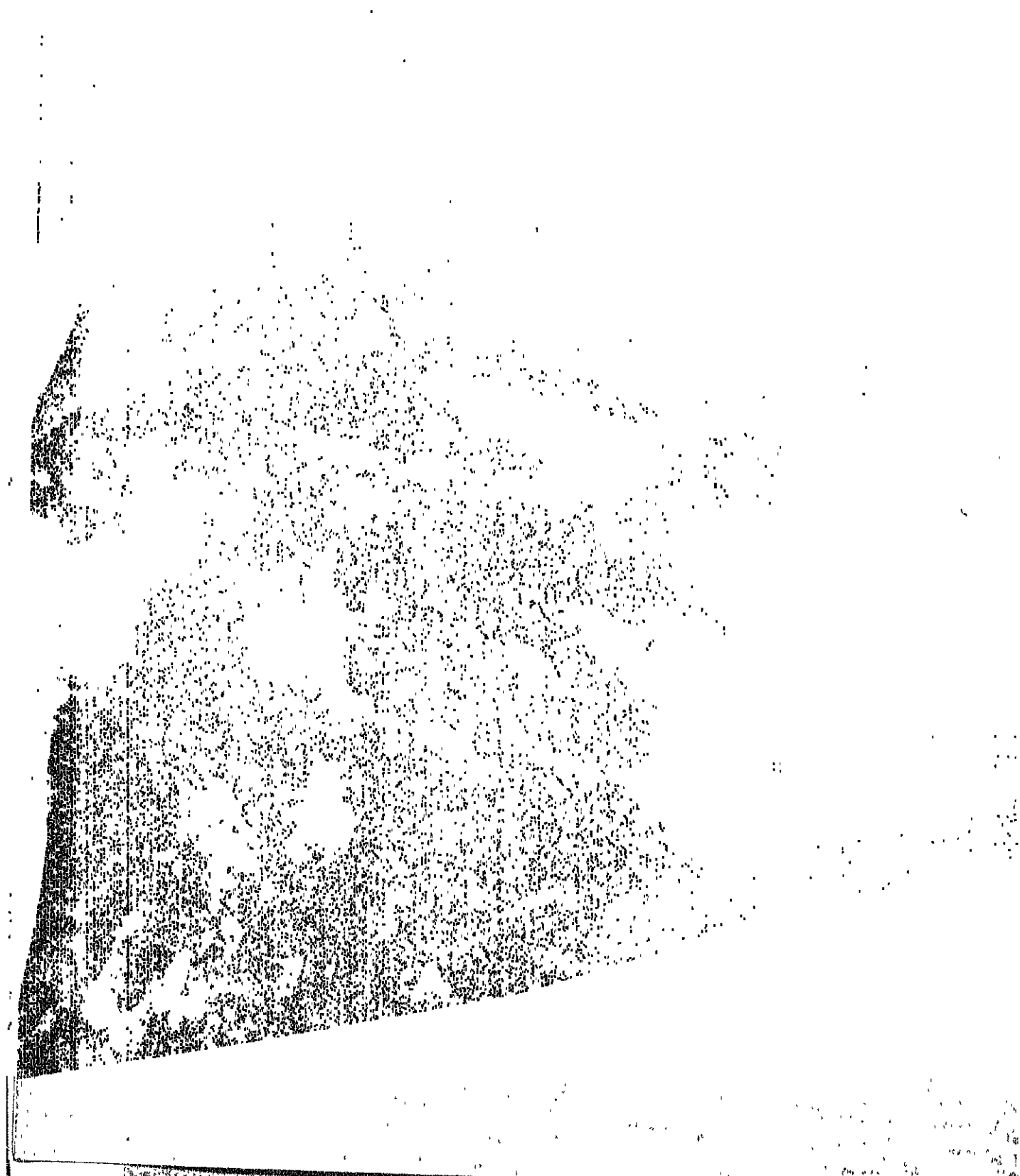


Secretary of the Interior.

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The offside of the road is a very narrow one (the other side)



Food and pelts are stored in the trapper's cache, which is raised to protect the goods from wandering bears.

## Alaska—The Unknown

*Alayeska* in the aboriginal Aleut language means a mainland or great land. And the name is aptly chosen, for Alaska is a great land—a land of extremes and superlatives.

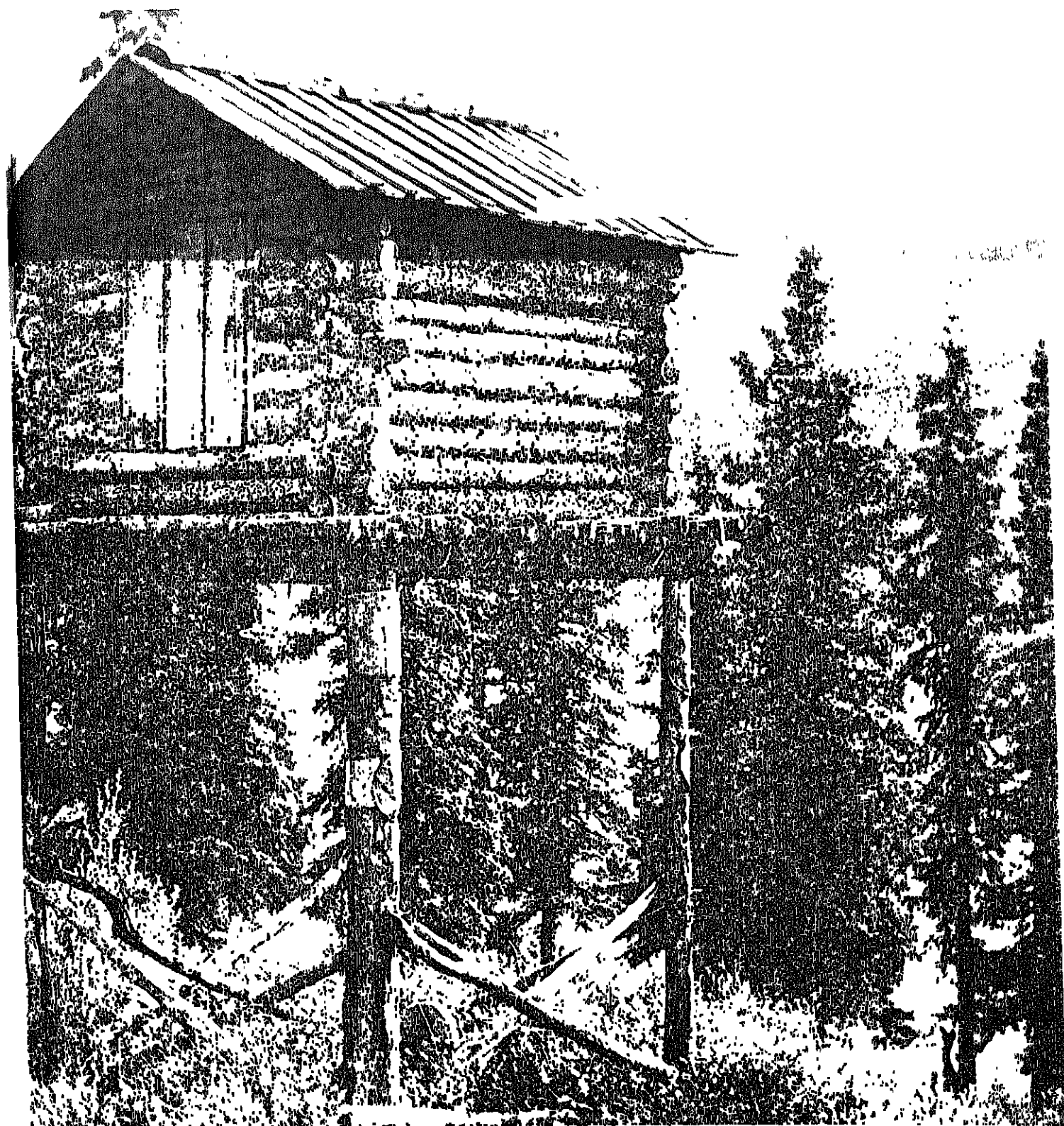
Alaska also has been called by many other names—Seward's Folly, Little Siberia, land of the midnight sun, Walrussia, the last frontier, the foremost frontier, and the hard land. But, Alaska is also an unknown land. In many ways, we know more about the surface of the moon than we know about some of the remote areas of our 49th State. Much of Alaska has not been mapped or explored.

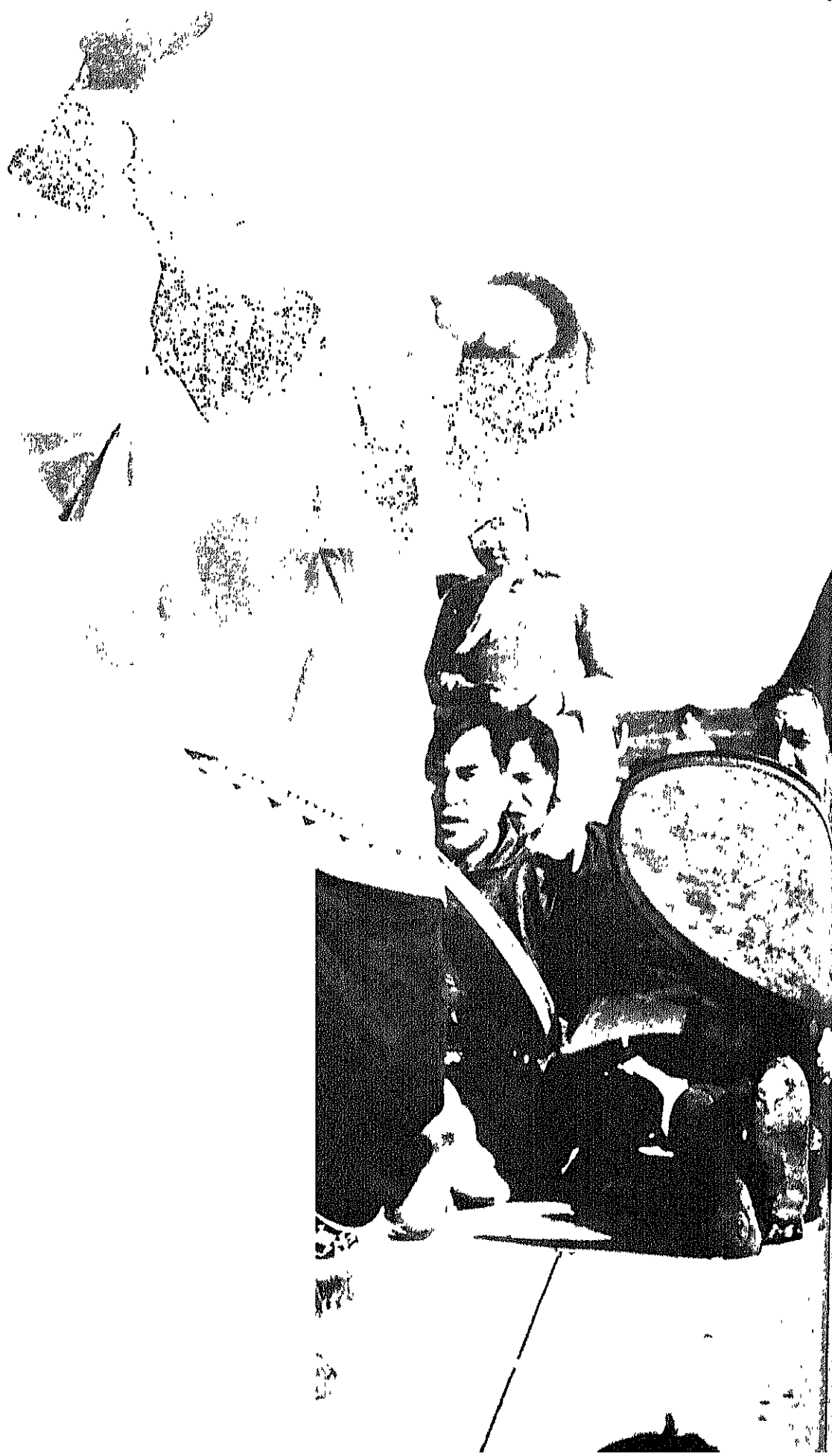
Popular misconceptions abound. The bar-room ballads of Robert Service and the romantic tales of Jack London have helped to fuse fact with fantasy.

Many people think of Alaska as a vast wilderness covered with snow and glaciers. There are world-famous glaciers, but they cover only 3 percent of the Great Land. There are also









luxuriant forests of hemlock and Sitka spruce. In southeastern Alaska, rain and mist total 220 inches per year at Little Port Walter on the southern tip of Baranof Island. At the other extreme, in the Arctic deserts of the Far North, annual rainfall and snow seldom exceed 4 inches per year.

Parts of Alaska are as modern as tomorrow. In Anchorage, for example, commuters fighting traffic snarls are aided by helicopter radio broadcasts—as their counterparts are in many large cities in other States. Still, the *Cheechako*—a native word for newcomer—often expects to find everyone travelling by dogsled, living in igloos, and eating whale blubber.

### *History of Alaska*

Alaska's historical fabric has been woven by people of many nations. Its designers include Russia's Peter the Great, the Danish explorer Vitus Bering, the British Captain James Cook, the stampedeers who followed the "Trail of '98," and the present residents.

The fabric has glittering threads from the gold, sequins from the silvery salmon, and the frosty film of Ice Age remnants.

Able historians have recorded the centuries of Alaska's pulsing changes. Writers such as Bancroft, Nichols, Andrews, Hulley, Gruening, and Rogers span the literary decades before and after the purchase of "Wahussta," through the almost one century of Territorialism, to the present stature of the 49th State. Their volumes contain legends of Eskimos, tales of the Aleuts, yarns of the days of the "Big Pan-Out," and journals of the climactic era of World War II.

### *Early History*

The early history of Alaska belongs not to North America but to Russia and Western Europe. In 1741 Vitus Bering, sailing under the Russian flag, set out to chart the coast of America. He sighted instead the St. Elias Mountains in southeastern Alaska. Bering was the first to solve the geographical puzzle

of the time. Yes, a land mass did exist east of Siberia, one which separates Asia from America.

One year later, Russia opened up its exploitation of Alaska by establishing a fur-trade industry. Russians were soon followed by British, Spanish, and French navigators, who, while exploring the Pacific Northwest and Alaska, named such places as Cook Inlet, Cordova, and Lituya Bay.

From 1799 to 1863 the Russian American Fur Co., managed by Alexander Baranof, virtually ruled Alaska. Baranof, called "Lord of Alaska," overexploited the valuable sea otter and enslaved and decimated the Indian and Aleut tribes. But, on the good side of the ledger, he founded settlements and shipbuilding sites and educated and Christianized some of the Natives.

### *Acquisition and Growth*

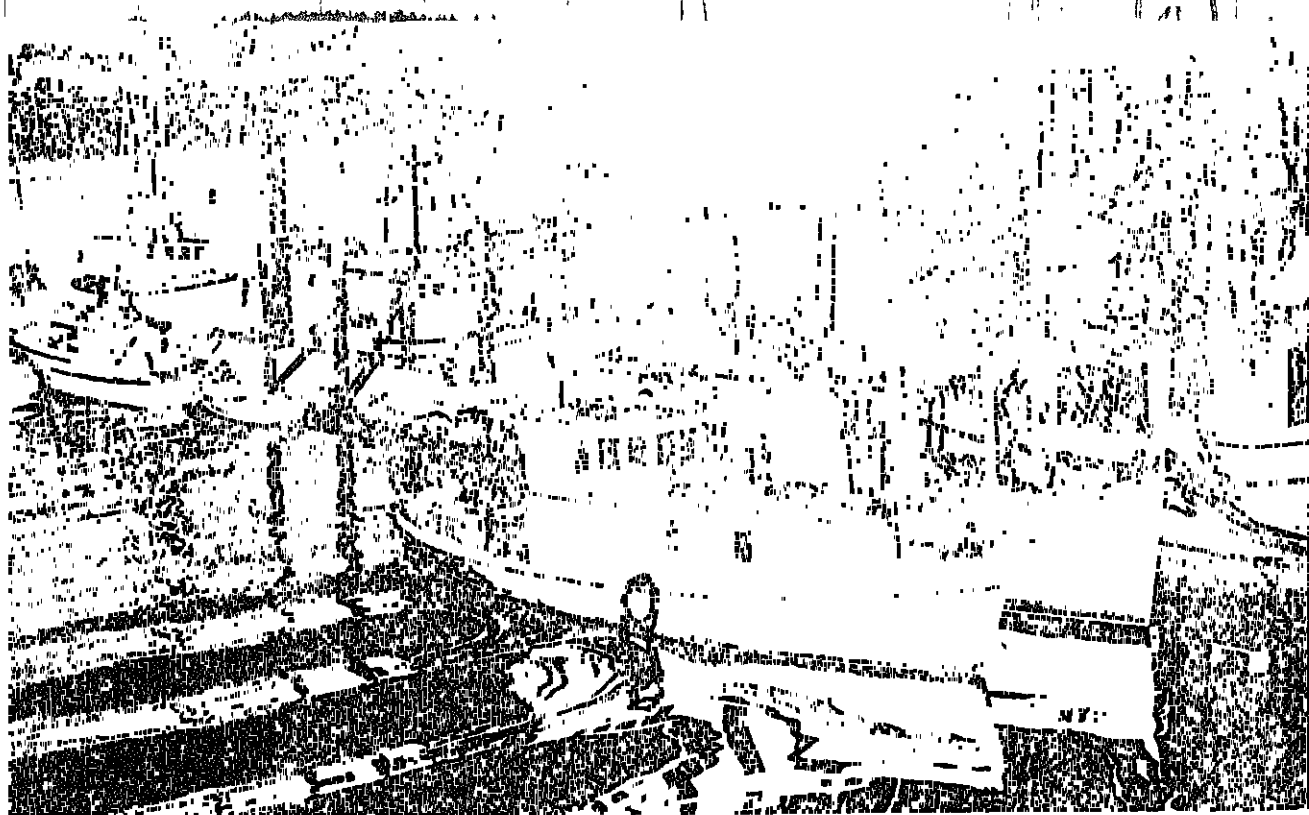
The end of the Crimean War in 1856 was a turning point in Russian history. Other international issues tended to withdraw Russia's energies from her American colony, and in 1867 she sold Alaska to the United States for \$7,200,000. The firing of the cannons and the raising of the American flag at Sitka symbolized a new direction in American policy—expansion beyond the territorial limits of the United States.

The period from 1873 to 1903 marked the discovery of gold in Alaska. Strikes in Canada's Klondike, the Yukon, and Nome brought thousands of stampedeers northward only to find that the claims of the advertisements were almost totally unfounded. Murder, drunkenness, and disease abounded during this time of disillusionment, and it wasn't until the next decade that Alaska began to concentrate on her minerals, timber, fish, and other natural resources and began to solve the problem of transportation.

The approach to the transportation problem came from the Federal Government. In 1914 Congress authorized the building of the Alaska Railroad. In July 1923, Warren G. Harding, the first President to visit Alaska, drove the golden spike that signaled official completion of the line. The railroad opened the way for

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The Eskimos are a versatile people, equally adept at handling a 2,000-lb. walrus and dancing a native dance.



coal mining and settlement, and it increased the importance of the rail terminal towns of Seward and Fairbanks.

Except for a series of geophysical setbacks such as the 1912 volcanic eruption at Katmai—one of the most violent in history—Alaska continued to progress. In 1917 the University of Alaska was established near Fairbanks and Mt. McKinley National Park was created. The Matanuska Valley farm project was started by the U.S. Government in 1935, and 1939 saw the beginning of organized fire protection for interior forests.

### *Statehood*

After World War II, Alaska entered a period of new settlement and expansion of agriculture and industry. When a wildcat well struck oil on the Kenai Peninsula major oil firms decided to enter Alaskan petroleum exploration. In 1957 Anchorage became the only North American stop in the new flights between Europe and the Orient. Thus Alaska became the "air crossroads of the world." The next step was

a logical one for this rapidly expanding territory—statehood! It was granted to Alaska by Congress on June 30, 1958, and became official on January 3, 1959.

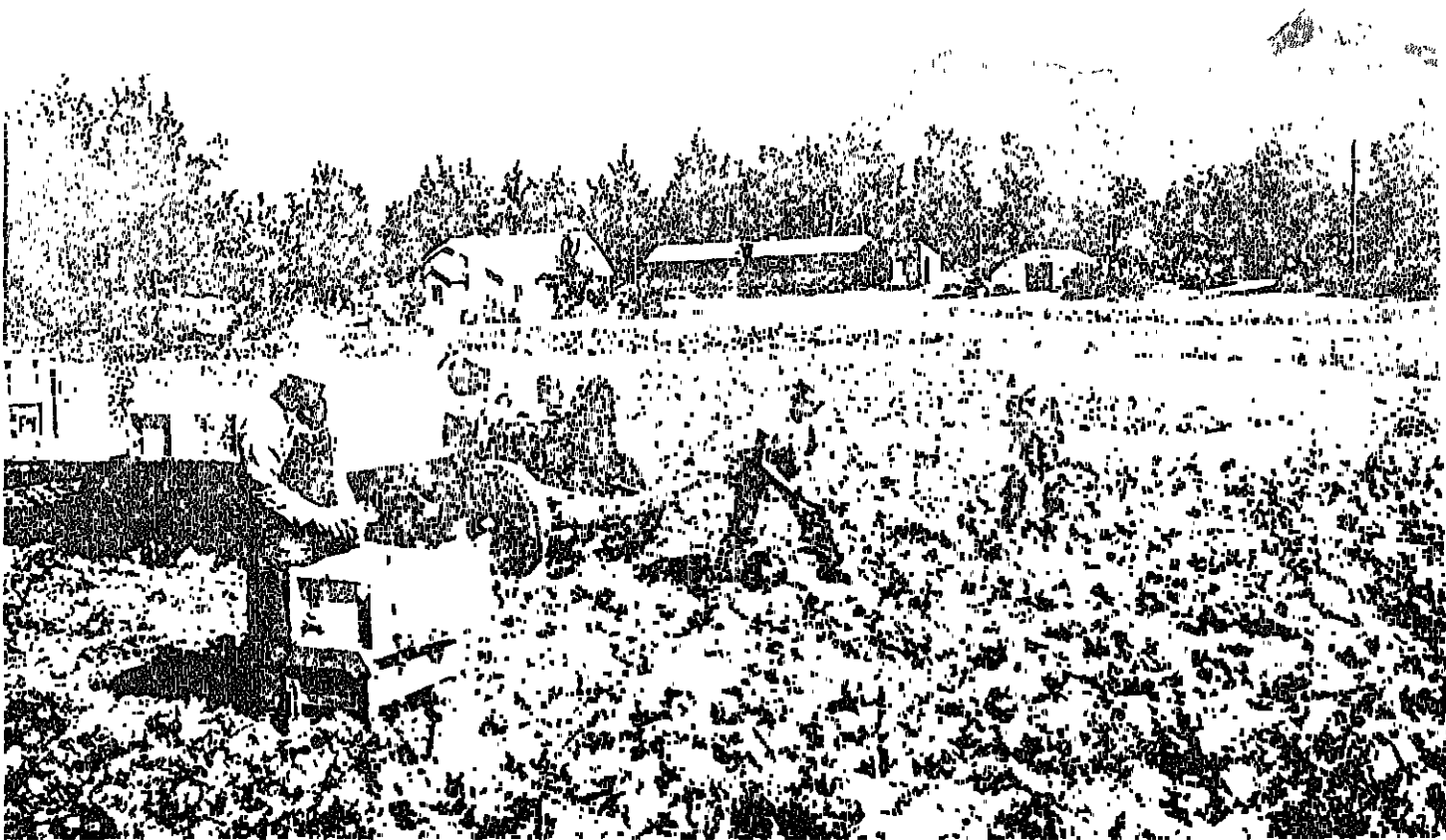
Today Alaska is faced with the problems of transition—the establishment of State government, courts, commissions—and with the complexities that accompany a growing population. Her story has just begun.

### *People of Alaska*

Alaska has the youngest population in the Nation. The average age of its 250,000 people is 23 years; 15 percent are younger than 5 years old.

Nearly half of the people live along the "Railbelt"—a strip 50 miles wide that follows the route of the Alaska Railroad from the seaport at Seward north through Anchorage to its terminus at Fairbanks. Other population centers include the southeastern panhandle, Kodiak, Nome, and some 250 scattered, small villages.

Anchorage, the largest, most modern city in Alaska, has a bustling population of more than



50,000, and it was recently chosen an "All American City." Anchorage, as well as several smaller towns, suffered severe damage during the Alaskan earthquake of March 27, 1964. But recovery and rebuilding have been rapid, due in part to an increase in private investment and a \$400-million Federal reconstruction appropriation.

Like other American settlements, Alaska has become a melting pot. Its quarter million people comprise 43,000 Eskimos, Aleuts, and Indians—the original inhabitants of the Great Land—80,000 military personnel and their dependents; and 127,000 people of mixed origin from the United States, Russia, Japan, China, the Philippines, and other countries.

### *Transportation*

On a per capita basis, Alaska is the flyingest State in the Union. It ranks first no matter how you figure it—by number of aircraft, number of pilots, number of passengers, or tonnage of cargo. Aircraft is the primary means of transportation both for goods and people. Be-

(Left) Salmon boats are moored along the water front. (Above) Lettuce is harvested on one of the many truck farms which supply vegetables for market at Anchorage.

he miner, trapper, teacher, clergyman, student, homesteader, businessman, or executive, the average Alaskan's casual conversation is as likely to center around what type of airplane he flies as around the model car he drives. One out of every 55 persons has a pilot's license.

Alaska has recently attained the status of a major international air crossroads, serving lines between the United States, Europe, and the Orient. Four airlines make daily jet flights between Alaska and Seattle, Chicago, and New York. And hundreds of "bush pilots"—some of the best in the business—fly to remote areas in all parts of the Last Frontier.

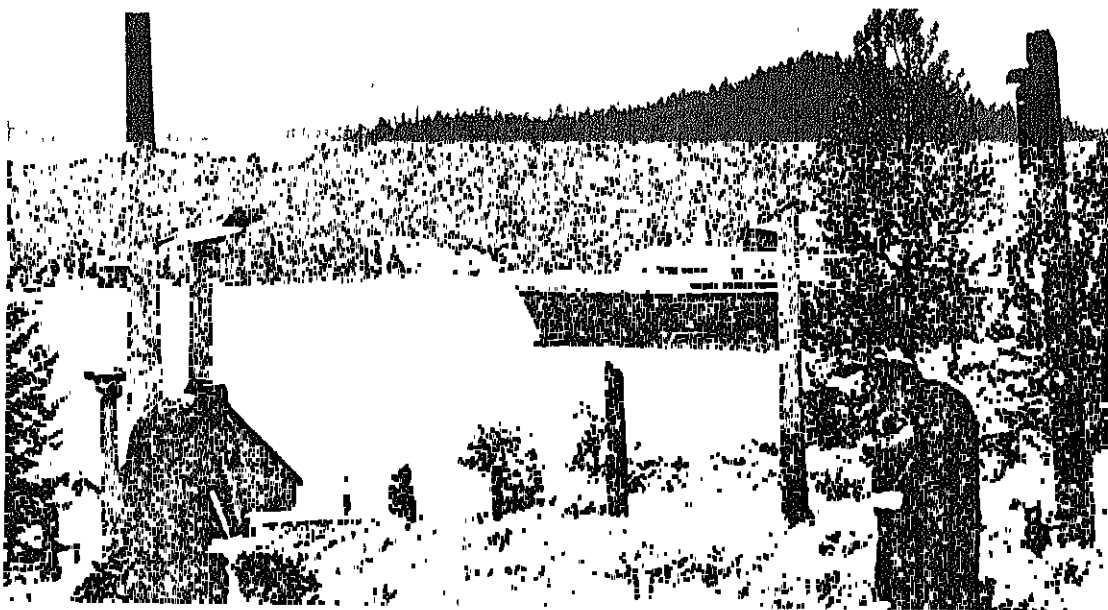
Road travel is more limited. Alaska has a highway network 4,500 miles long, linking most of the major population centers, except those in the panhandle. To aid the cities in southeastern Alaska, the State has installed a marine highway (ferry system) between Prince Rupert, B.C., and Haines. In their first years

of operation, the three 350-foot auto-passenger ferries have been highly successful. Travel over the famous Alaska Highway through Canada is also increasing rapidly.

One of the transportation links most vital in developing natural resources has been the Alaska Railroad, which will be discussed in more detail in a later chapter. The 482-mile line has served homesteaders, moose hunters, coal mines, fishermen, Indians, military forts,

courses at military installations, and 1,500 in various community college programs. It was established as a land-grant college in 1917.

The University of Alaska has worked closely with Federal natural resource agencies and has made lasting contributions to the development of natural resources in the State. Since its establishment, the University has carried out a three-part function of teaching, research, and service.



Alaska's marine highway has opened up seven towns and 1,500 miles of coastline along the Inside Passage.

cities, road camps, freight shippers, and big business along the railbelt for more than 50 years.

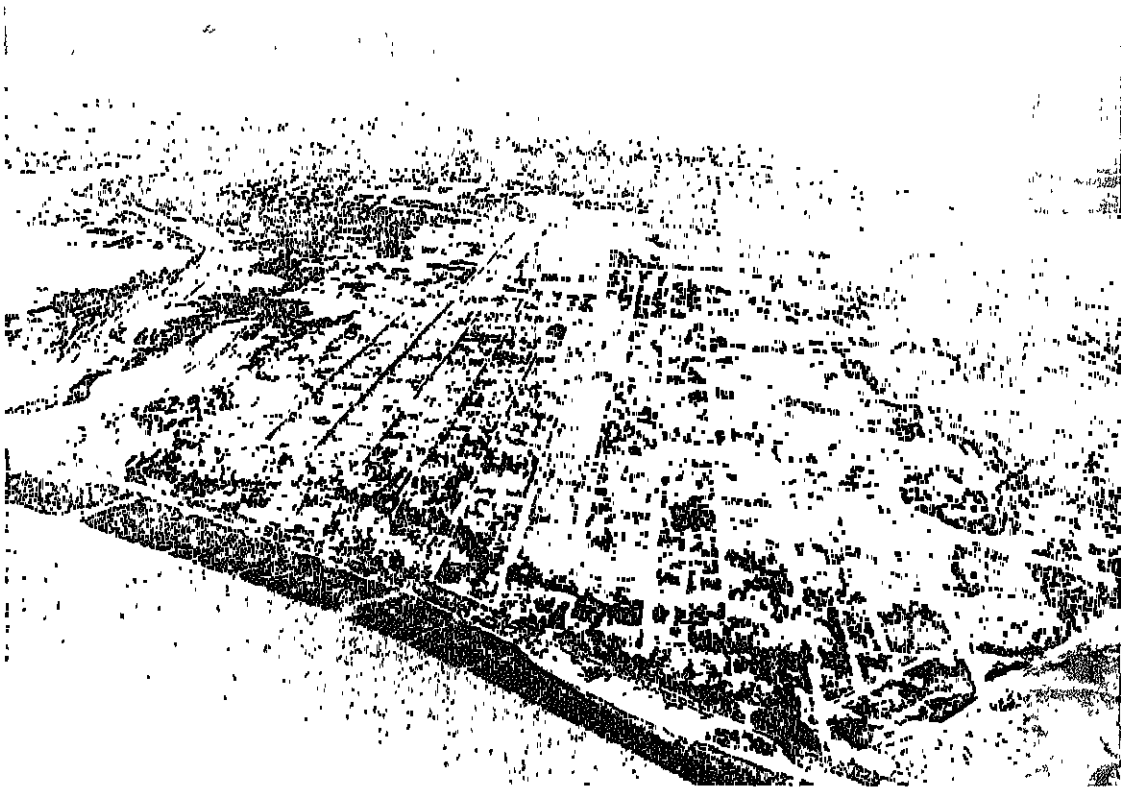
### *Education*

Schools and colleges in Alaska are similar to those in other States. Academic standards, in general, are high. The 240 public schools have a total enrollment of 57,000 students. In addition, there are 24 private schools. The Bureau of Indian Affairs operates 81 schools for some 6,000 native children in remote villages.

The University of Alaska near Fairbanks is growing rapidly both in enrollment and in scientific research. This modern university has 1,500 students on campus; 1,700 in special

Possibly the greatest contributions of the University are its extensive research programs. Through major research in zoophysiology, animal and plant ecology, geology, agriculture, oceanography, and geophysics, much knowledge is being obtained about the vast, unexplored areas of the State.

Other institutions in Alaska are also helping meet the State's educational needs. The multimillion dollar Alaska Methodist University in Anchorage grants Bachelor of Arts and Bachelor of Science degrees. This recently completed, rapidly growing university has an enrollment of about 400 students. Sheldon-Jackson Junior College at Sitka has about 75 students. Because of the State's young population enrollment in nearly all schools and colleges is mushrooming.



(Above) Anchorage, once a small railroad camp in the wilderness, now boasts 30,000 residents.

(Below) The University of Alaska. Alaska's educational system ranks among the best in the Nation.



# The Great Land





Much of Alaska is ice and snow but in a land so big, almost one-fifth as big as the rest of the United States, there is room for glaciers and people too.



Alaska's area represents fully one-sixth of our Nation's land mass, and the 49th State spans a distance equal to the width of all the "Lower 48." If you were to superimpose a map of Alaska over a map of the "Lower 48," Ketchikan would line up with the East Coast in South Carolina and Attu Island would be on the West Coast near Santa Barbara. Actually, Alaska is so big that its westernmost point, Attu, is beyond the Western Hemisphere, six standard time zones west of Washington, D.C.

### *Mountains*

Alaska is well known for its impressive mountains. They are grouped in three main systems or belts.

The first, or southernmost belt, borders the Pacific Coast. It includes the Kenai-Chugach Mountains, St. Elias Mountains, Fairweather Range, and the mountains of Alaska's southeastern panhandle. All of these mountains have been heavily glaciated and their higher parts are still beneath great icefields and glaciers which are among the largest in the world.

The St. Elias Mountains are probably the most spectacular mountains of North America. Isolated blocklike mountains, 14,000 to 19,000 feet high, rise from a myriad of narrow ridges and sharp peaks. Local relief is extreme and massive.

The second belt includes the Aleutian Islands, Aleutian Range, Alaska Range, and Coast Mountains. The Aleutian Island chain is the top of a submarine ridge 1,400 miles long, 20 to 60 miles wide, and rising 12,000 feet from the sea floor on both sides. Along this curved ridge, 57 volcanoes, including 27 active ones, rise 2,000 to 9,000 feet above sea level.

The Alaska Range consists of many parallel, rugged, and glaciated ridges and snowcapped mountains 7,000 to 12,000 feet high. The range rises abruptly on both sides and is topped by magnificent Mount McKinley, highest peak on the North American continent. The Indians called it *Denali* which means the high one, because it is so high the light from the sun lingers upon its 20,320-foot peak long after the surrounding landscape has grown dark.

The Copper River Basin and the Cook Inlet-



Susitna Basin, connected by the narrow Matanuska Valley, which separates the two Pacific Coast mountainous belts are analogous to the Great Valley of California and the Puget Sound lowland of Washington. They are several thousand feet lower than the neighboring mountains and, largely because of their relative mild climates and fertile soil, were the areas first settled and most developed for purposes other than mining. In the Cook Inlet area south of Anchorage recent drilling has discovered major oil and gas fields both on the Kenai Peninsula and beneath the waters of Cook Inlet, where the oilman must contend not only with the rocks through which he drills, but also with the second highest tides in North America, and with heavy winter ice carried back and forth by swift currents.

The Pacific Mountain system is separated from the Arctic Mountain system by the Intermontane

Plateaus, a large region of dissected uplands and broad, alluvium-filled, lowland basins. This region is largely drained by the broad, navigable Kuskokwim and Yukon Rivers that have been historically important highways into the rich Klondike and Fairbanks goldfields. From its source near Whitehorse in Yukon territory, the Yukon River runs about 2,300 miles to its delta on the Bering Sea. It is the fourth longest river in North America.

The mountain system farthest north—the third belt—includes the Brooks Range and its western extensions, the Baird and DeLong Mountains. The Brooks Range consists of jagged, glaciated ridges with summits 7,000 to 8,000 feet high. The area to the north gradually slopes into a treeless, naked landscape typical of the polar regions.

Thousands of tundra lakes dot this smooth, almost featureless, Arctic plain. Point Barrow,



farthest north point in the United States, is located on a sandy spit of land jutting out from the edge of this plain.

### *Climate*

Climate in Alaska is as varied as the topography. Average annual rainfall ranges from 220 inches on one of the heavily forested islands of the lower panhandle to less than 4 inches at Point Barrow on the Arctic Ocean. At Fort Yukon in the interior near the Canadian boundary the average January temperature is close to 22° below zero, with a recorded minimum of -78°; the July average is about 61°, with a maximum of 100°. At Point Barrow the average number of days between killing frosts is only 17; it is 89 at Fairbanks and 172 at Juneau.

Southeastern Alaska has a mild climate with warm winters and cool summers. The tempera-

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Tustumena Glacier in Kenai National Moose Range offers superb scenery to the wilderness hiker and photographer.

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ture seldom drops to zero. However, in Fairbanks, in interior Alaska, the winter temperature commonly drops to -50° and has hit -60°, and in the summer the temperature may reach 90° in the shade. In Arctic Alaska the average temperatures are about 17° below zero in the winter and 40° above in the summer.

Even north of the Arctic Circle, temperatures above 100° are frequent. This makes the forest and tundra as dry as tinder and, therefore, easily ignited when lightning storms sweep over the interior.

### *Geology*

Alaska's antiquity is demonstrated by a 4-mile-thick sequence of lava and sedimentary rock in the Yukon-Porcupine area. These rocks of Precambrian age are at least a billion years old, and like most Precambrian rocks they are devoid of traces of living organisms.

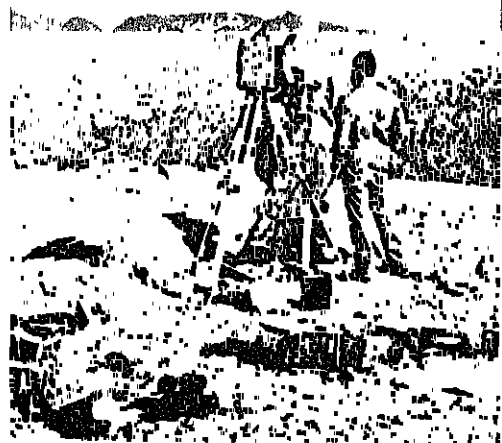
Rocks of early Paleozoic age from 400 to 600 million years old, are exposed mainly in small, widely scattered mountain areas. In the Yukon-Tanana Upland, near Nome, and in other areas, these rocks were altered and invaded by igneous (once-molten) rock and ore-bearing solutions. Gold and other ore minerals were deposited. In the Nome and Fairbanks areas these mineralized rocks were uplifted and partly eroded. The eroded gold was deposited downstream in placer deposits that for many years provided the basic mining industry of central Alaska.

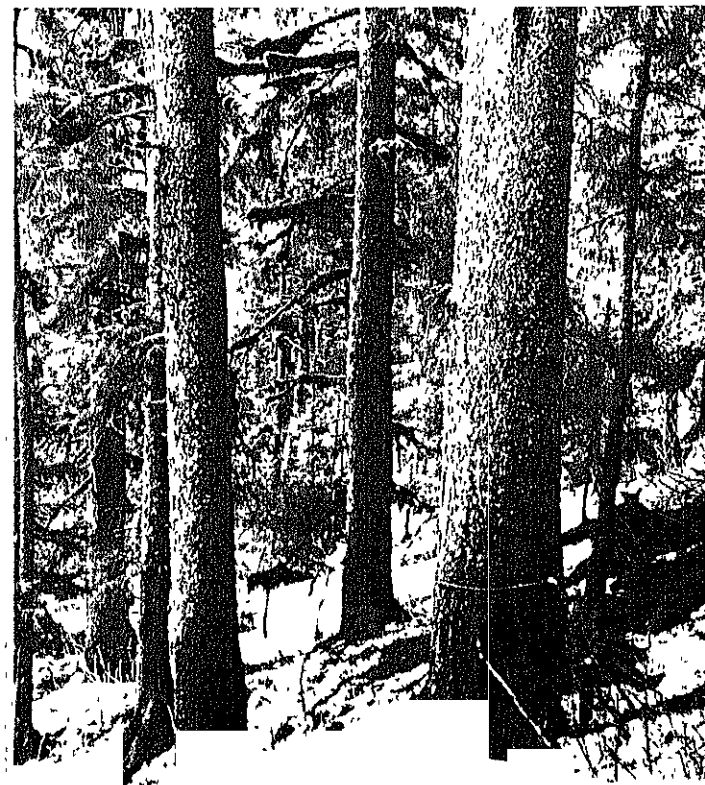
Rocks of late Paleozoic age, from 230 to 400 million years old, form the central ridges of nearly all of Alaska's mountainous belts. Although mostly limestone, dolomite, and shale, they include volcanic rock in some areas, particularly in southern Alaska. The rocks of Precambrian and Paleozoic age record several advances and retreats of ancient seas as well as periods of deformation and intrusions.

Triassic rocks of early Mesozoic age, about 200 million years old, record a general marine inundation and little crustal disturbance through-



Glacier Bay, with its branching tidal inlets, is studded with ice from the surrounding glaciers which feed it. (Left) Alaska has 33,000 miles of coastline and more than 3 million fresh water lakes within its boundaries. (Below) BLM engineers use electronic distance measuring devices to speed the survey of public lands. (Right) Sitka spruce in the rain forests of the panhandle often attain a diameter of more than 6 feet.





bedded with the marine shale and sandstone in southern Alaska.

This quiet period, short-lived in terms of geologic time, was followed by a series of violent, mountain-building movements which continued until about 70 million years ago. These disturbances are now manifested by complex bends, folds, and great breaks in the rocks—igneous rocks and mineralizing solutions forming many of Alaska's valuable mineral deposits, were intruded into rocks of all ages.

The ancient seaway, which in Paleozoic time covered much of Alaska, was broken up into smaller basins and troughs during this mountain-building episode. The rocks deposited in these basins, rich in organic materials, are the source of major oil and gas fields in the Kenai-Cook Inlet area and in northern Alaska. The sea withdrew from some of the basins in Late Mesozoic and Tertiary time, and these were filled by continental deposits, brought by the many rivers that began to erode the newly formed mountains. The continental or near-shore deposits contain vast quantities of coal. Some coal is now being mined in the railroad belt, but most of it remains for future needs.

The mountainous belts were again strongly uplifted near the end of Tertiary time to form the present mountain systems of Alaska. But immediately the action of wind, water, ice, and chemical solutions began to modify the landscape.

About 1 million years ago during the Pleistocene Period or Ice Age, the landscape of Alaska was extensively modified both by the grinding and carving of glacial ice and by rivers which washed away the broken rock debris and redeposited it in the lowlands. These processes continue today particularly in the Yukon-Tanana, Cook Inlet, and Cooper River Basins where great glaciers are bringing vast quantities of finely ground rock to the streams that flow into the lowland and into the sea.

Except in northern Alaska, volcanic rocks of Pleistocene and Recent age are widespread, particularly in western Alaska, the Wrangell Mountains, the Alaska Peninsula, and the Aleutian Islands. Many volcanoes in these areas have recently been active.

## The First Alaskans



Back in the dim past—long before Captain Bering first sighted the shores of Alaska—a primitive culture existed. For untold centuries, these first Alaskans managed to survive in this bleak land. They lived mostly by hunting and fishing—and by practicing the arts and crafts of a stone-age culture that remained practically unchanged for thousands of years.

The heritage of the past lends a challenge and a fascination to modern Alaska. In these critical years of abrupt transition, the old blends with the new. The dogsled and the fan jet can be seen side by side on airstrips in the Arctic tundra; the first Alaskans are trying valiantly to adapt themselves to the pressures of a new age.

### *Native Background*

One out of four Alaskans—excluding military personnel and their dependents—is a citizen of aboriginal origin referred to as Native. On the basis of location and cultural background,

Alaskan Natives can be classified in four groups:

1. Tlingit, Haida, and Tsimshian—tribes in southeastern Alaska.
2. Athabascan Indians in central and Alaska along major rivers.
3. Eskimos in southwest and north Alaska, mainly along the coast of the Bering and Chukchi Seas and the rivers which flow into them.
4. Aleuts in the Kenai Peninsula, and the Aleutian Islands.

### *Indian Tribes*

Three southeastern Indian tribes live in the Alaska Panhandle from Ketchikan to where their ancestors found abundant foods—shellfish, salmon, seal, berries, and bear. Rugged mountains, torrential rains, craggy coasts, and dense forests complicate the terrain.



The 8,000 to 9,000 Tlingits make up the majority of Indian people in southeastern Alaska. An elaborate and complicated social structure developed among the Tlingits as well as the other Pacific Coast tribes. Tlingits belonged either to the Wolf or Raven moieties, which in turn were broken down into numerous clans named for characteristic animals—the individual totems of the clan—such as the Wolf, Bear, Cohoe, and Killerwhale. Originally the Tlingits traded with other Indians in the interior as far south as the Washington and Oregon coasts. The Tlingits also carved totem poles and other beautiful articles in bone, horn, and wood. They are known especially for ceremonial Chilkat blankets artistically woven of mountain-goat wool and spruce bark.

At the south end of Prince of Wales Island is the village of Hydaburg inhabited predominantly by Haida Indians. The Haidas are famous for totem and slate carvings. They are

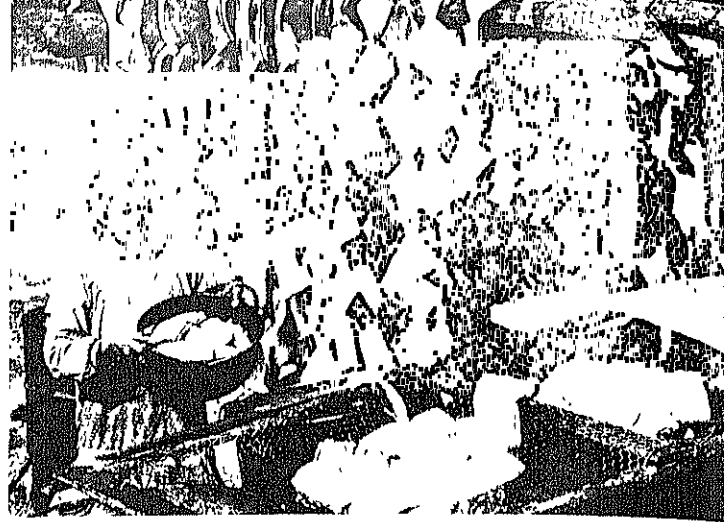
also well known for precise and delicate working in wood, bone, and shell. Today, as previously, most Haidas are commercial fishermen.

Because of geography and differing cultures, Alaska's native people—the Eskimos, Aleuts, and Indians—have remained isolated from the rest of civilization. This isolation has had a tendency to break down in recent years as the need for education and jobs increases.

The Tsimshian Indians migrated from British Columbia to Annette Island in 1887. Today, they live in the modern village of Metlakatla. They are primarily fishermen, well integrated into the life of the State and Nation.

Wide river valleys along the Yukon and Kuskokwin and their tributaries are the home of the Athabaskan Indians of interior Alaska. Before the advent of white people, these interior Alaskans were nomads. They followed the moose and caribou, and built few villages. Theirs was purely a hunting economy, with no





Fishing is the No. 1 business of the Eskimo, whether the catch be a walrus or a tomcod. The Eskimos are big whale hunters as well, using the meat for food, the skins to cover boats and shelters, and the bone for carvings.



agriculture. They were somewhat dependent on the river fish, especially the salmon.

### *Eskimos*

Of all the aboriginal people in the State, more than half are Eskimos. They live in more than a hundred widely separated villages along the Bering Sea and Arctic Ocean coasts, along the lower deltas of the Yukon, Kuskokwim, and smaller rivers in western Alaska, and on the Diomedes, King, St. Lawrence, and Nunivak Islands. Here, they adapted themselves throughout the centuries to a barren and inhospitable land. The people, however, can

hardly be termed inhospitable. They are a charming, intelligent race known for their delightful sense of humor and exuberant love of life.

Dependent to a large extent on the products of the sea, the Eskimos are great hunters of whale, walrus, and seal. They know the vast Arctic and its moods better than other Americans know the route to the supermarket. They possess uncommon strength and endurance. Eskimos are noted for their games, dances, and blanket toss. Contrary to the popular notion, few have ever seen a snow igloo, common to the interior Eskimos of Canada.

The land of the Eskimos is frozen most of the



year. Sea ice, heaved into pressure ridges, occasionally extends across the Bering Straits to join with Siberia. But for the four brief months beginning in late May or early June after the ice moves out, the Arctic coast changes dramatically. The snow melts; myriads of bright flowers splash color on the tundra moss; the sun-sparkled sea gives access to ships; Eskimos exchange sleds for boats made of skins; and thousands of migratory birds that have wintered in the south return to their nesting grounds in the tundra.

### *Aleuts*

The Aleutian Islands are home for the Aleut people. This group of volcanic, treeless, grass-carpeted islands is shrouded in fog most of the year. The Aleuts are related to the Eskimos and inhabit not only the Aleutian chain but also the Alaska and Kenai Peninsulas.

Aleuts were the first Alaskans to confront Russian explorers in the early 18th century. Through Russian colonization and intermarriage, they absorbed much of the Russian culture. Most Aleuts are members of the Russian Orthodox Church. They were known for their hunting in lightweight skin boats in which they made long coastal voyages, often far from shore, in pursuit of sea otter, seals, sea lions, and even whales. Some of the finest grass basketry and skin sewing was done by Aleut women.

### *Natives Today*

For centuries the Indians, Aleuts, and Eskimos have lived within well-defined regions, with very little mixing of ethnic groups. This isolation has shown a tendency to break down in recent years. Yet today many of these people still live in their ancestral communities. They were not forced to move to reservations, as Indians often were in other States.

Except in Alaska's larger communities, native citizens are in the majority. Most of them live in 250 small, remote villages where they follow many of the centuries-old traditions of their ancestors. Because of geographical distribution of small communities through a vast area—often isolated by natural barriers as well as by dis-

tance—the Indians, Eskimos, and Aleuts of Alaska find it difficult to meet in a body as do those in the "Lower 48" who live on reservations.

All Alaskan Natives are citizens of the United States and of Alaska for they were naturalized collectively by the Citizenship Act of June 2, 1924. They are not wards of the Government, though the Federal Government does perform functions designed to meet their special needs.

While many still hunt and fish as a major part of their livelihood, others are airplane pilots, welders, mechanics, carpenters, storekeepers, teachers, office workers, and State legislators.

Where electricity is available, many Eskimo and Indian homes today have washing machines and electrical appliances. Many Natives use fuel oil for heat and electricity for light and power. Among Natives, mail-order jackets and dresses vie for popularity with handmade fur parkas, but most everyone finds that the handmade fur mukluks surpass "store-bought" boots and shoepacks.

Native Alaskans are brave, hardy, and intelligent; without these qualities they would never have survived their arctic environment. While they are by nature very adaptable, it is not easy for them to settle down to an entirely new way of life and to quickly lose their identity in the mass of fellow Americans.

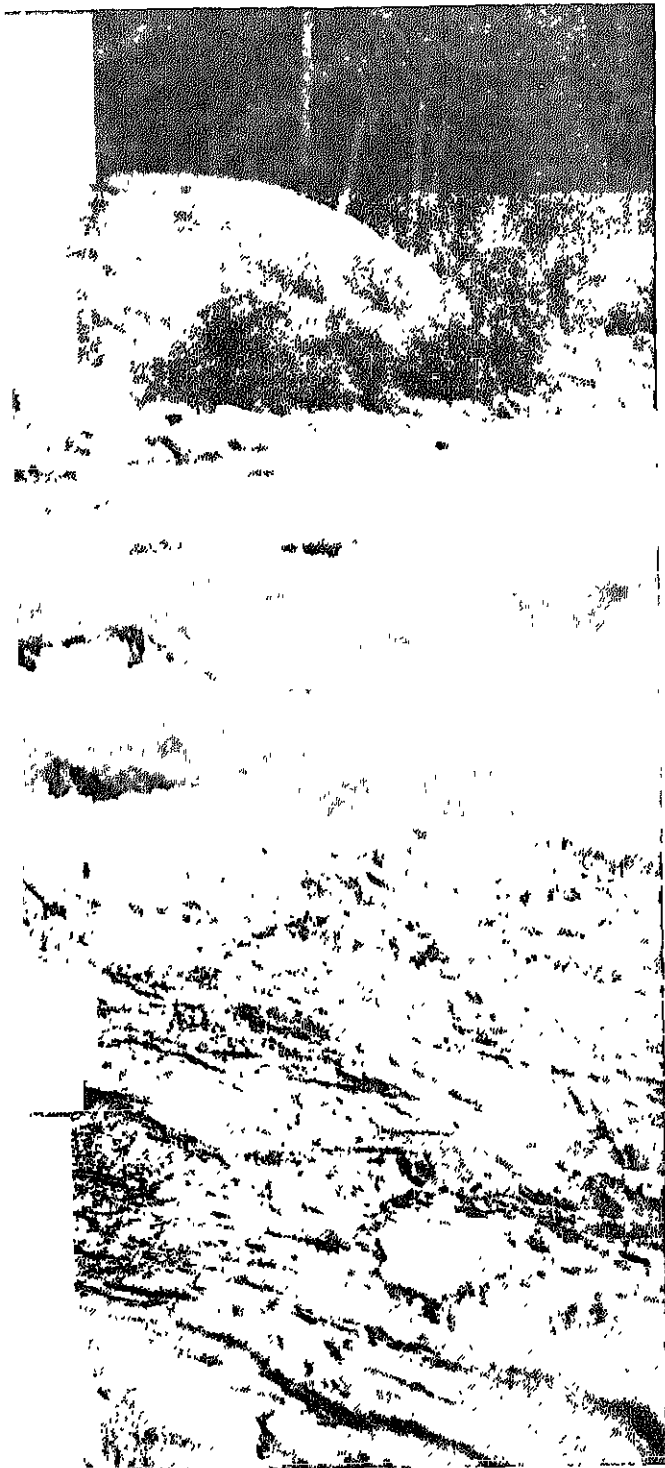
Many Natives hope their children will be able to bridge the cultural gap between the old and the new. Through education they hope to bring to their isolated hamlets a more secure way of life for their children. Hence, the teacher in a native village school plays a key role in the community. He serves the people in the manifold capacity of adviser as well as teacher.

Most Natives hunt and fish for food, and work for wages. But jobs are mostly seasonal and away from home. A few Natives operate small businesses. Most of these enterprises are family or individually owned reindeer ranches, stores, restaurants, lodges, fishing boats, fish canneries, and arts and crafts shops. Together, some Natives also mutually own and operate more than 50 nonprofit enterprises that were fostered and financed by loans from the Bureau of Indian Affairs.

## Mineral Resources



The hopes of these three prospectors are high as they pan for gold in one of Alaska's more profitable streams.



A TON OF GOLD! That was the headline that brought Alaska to the attention of the world in 1897. A steamer from the Far North had just docked in Seattle bearing a cargo of fabulous nuggets fresh from the Klondike. News of the gold attracted prospectors and stampeders by the thousands. It also lured writers and adventurers—men like Robert W. Service, Joaquin Miller, Rex Beach, and Jack London.

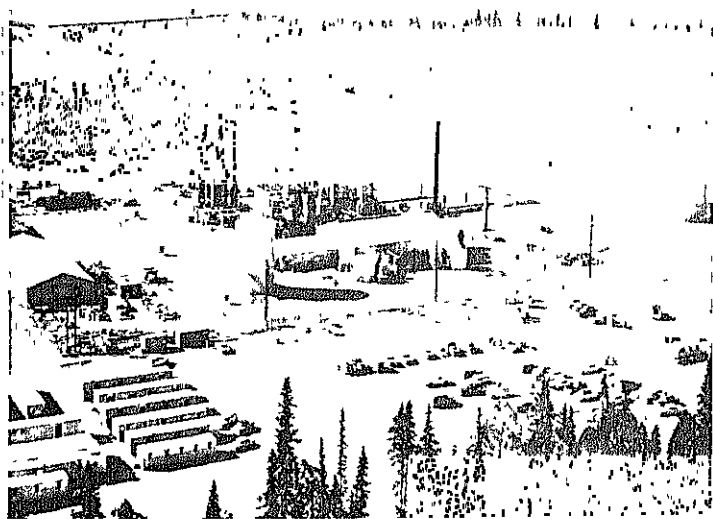
Thus, from its earliest days, the mineral industry in Alaska has been a source of both wealth and legend. Since 1880, when output was first recorded, the Great Land has produced \$1.5 billion worth of minerals—plus countless tales of adventure and death along the Yukon.

To date, gold accounts for half of the mineral production and most of the stories, but the State is also famous for copper, oil, and natural gas. Statehood is bringing a careful assessment of Alaska's mineral resources. It appears now that the State's true mineral potential will dwarf even the most fabulous stories of the past. For, as her citizens have come to realize, Alaska is so big that only a fraction of her territory has been thoroughly explored. If this fraction has yielded so much in less than a century, what discoveries must await the modern prospector with all the tools of an advanced science at his command?

One report on the State's mineral resources, written in 1959, summed up the situation this way: "Geologically, Alaska may be described as a gigantic punchboard with an unknown but substantial number of winning numbers. . . . Probably less than 1 percent of the land mass has been adequately explored for minerals, and it is just in the past 2 or 3 years that important private interests have undertaken intensive exploration with helicopters and modern equipment."

#### *Petroleum*

In 1957 oil was found on the Kenai Peninsula, setting off a frenzy of petroleum exploration



New industry for Alaska is seen in the Nikishka Refinery near Kenai, the State's most productive oil area

and development that rivals the early gold rushes in intensity, and that promises to exceed them in the production of new wealth. Drilling has revealed major reserves beneath the peninsula and the waters of Cook Inlet, and exploration now centers in this region and in the Arctic Slope area.

Production from the Kenai Cook Inlet fields has had a tremendous impact on the State's mineral output, pushing it to record heights in each of the past several years. Total annual mineral production is now around \$71 million, with oil and gas accounting for one-half. This trend is expected to continue for some time as new discoveries are made and new wells are drilled.

The new oil producing area lies virtually in the heart of the region struck most severely by the Good Friday earthquake of 1964. Damage to the oilfields, the pipelines, and a 20,000-barrel-a-day refinery that only recently had been completed was luckily very slight, although millions of dollars were lost as storage and marketing facilities in and around Anchorage were destroyed.

### *Coal Resources*

In addition to her new wealth in oil, Alaska possesses approximately 120 billion tons of estimated coal resources, widely distributed throughout the State. More than 90 percent

of the total is in the northern Alaska field, but the Cook Inlet Alaska Railbelt area contains the two most significant producing coalfields—the Matanuska and the Nenana—which, combined, have reserves totaling more than 7 billion tons.

Recent coal output has been about 800,000 tons annually, consumed mostly by military installations. The shift toward strip mining that began in the 1940's is now complete, and there are no longer any operating, underground coal mines in the State.

### *Sand and Gravel*

In terms of monetary value, Alaska's most important developed minerals, next to petroleum, are sand and gravel. These commodities have always been in demand for roadbuilding and construction, but the need for extensive repairs after the 1964 earthquake caused a sharp increase in production. Reserves are abundant and widespread throughout Alaska.

Production of stone also was stepped up after the earthquake. High-quality stone is found in many parts of the State, and the islands of southeastern Alaska contain hundreds of millions of tons of especially pure limestone.

Other nonmetallic minerals such as phosphate rock, graphite, barite, and sulfur have been discovered.

### *Metals*

The unchanging price of gold, combined with increasing production costs, has reduced gold output in Alaska as it has elsewhere; annual production value recently fell below \$3 million. Most of this came from placer mining; there have been no significant lode gold mines since World War II.

Nevertheless, interest in developing new sources of gold in the State is strong. Lodes in the Chandalar, Fairbanks, and Willow Creek districts have been explored, and several permits have been granted for examining offshore placer deposits, especially in the Nome area.

Alaska's copper output has not been great since the 1938 closing of the famous Kennecott mines near McCarthy. These mines yielded 1.2

billion pounds of the metal during 27 years of operation. Many deposits have been found throughout the State, however, and one at Ruby Creek, north of the Arctic Circle, is being explored intensively. Other well-known copper deposits are at Prince William Sound; on the upper Copper River; and in the Cook Inlet area. Total production since 1890 is valued at more than \$227 million, ranking copper next to gold in cumulative output.

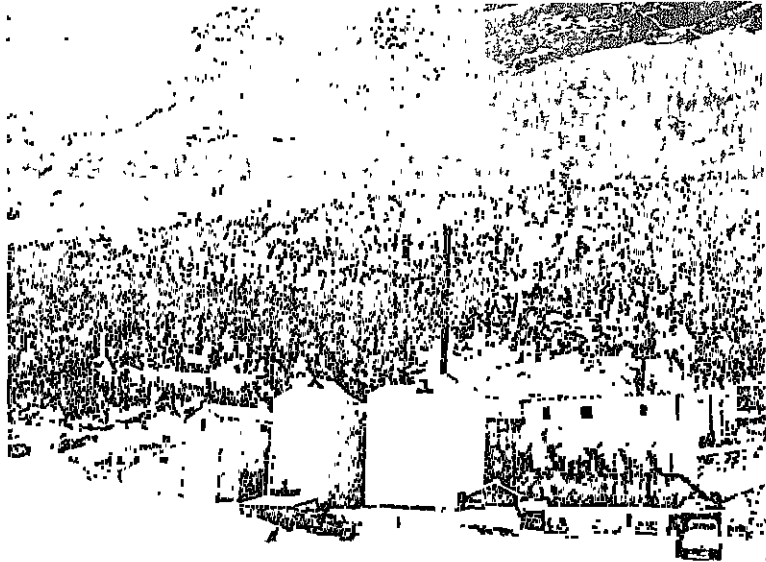
Large deposits of iron ore have been explored at Port Snettisham, at Union Bay, and in the Bristol Bay area. About 25 miles northwest of Haines is the well-known Klukwan alluvial fan. This deposit, accumulated by erosion and weathering, contains 500 million tons of material averaging 10 percent iron. Recently, extensive deposits of low-grade iron ore have been reported in the Alaska Peninsula, some 200 miles southwest of Anchorage.

#### *Mercury, Silver, and Platinum*

For many years Alaska ranked third in the Nation in mercury production, but with the closing of the famed Red Devil Mine, output dwindled. Nevertheless, the State is known to have mercury deposits of relatively high grade, and the Kuskokwim River Basin contains numerous significant occurrences of this important metal. Experts say that chances are good for finding more and perhaps even better deposits.

Silver production in Alaska has traditionally been a byproduct of gold and copper mining, and has been declining with output of these metals. Recent increases in the price of silver, however, have sparked interest in the lode deposits of the Kantishna and Hyder districts. Occurrences of lead-silver-zinc ores are known to be numerous; about 200,000 tons were discovered near Mt. Eielson, and over 500,000 tons in the Groundhog Basin east of Wrangell. The State has produced small amounts of lead and zinc in the past.

A dredging operation on the Salmon River—the only place in the Nation where platinum is the primary metal product—also yields significant amounts of other platinum-group metals. Recently offshore placer deposits of platinum in



Much of Alaska's yearly coal output passes through this preparation plant, serving Matanuska coalfield.

the Goodnews Bay area have claimed industrial interest.

#### *Other Mineral Products*

Alaska has reserves of many minerals that presently are mined only when prices are high, or for strategic purposes, and these reserves can be expected to become more important in the future. Tin deposits are widely distributed on the Seward Peninsula. This metal also has been recovered as a byproduct of placer gold mining in the Yukon River region. Some 30,000 tons of chromite for Government stockpiles have been recovered from deposits on the Kenai Peninsula. Geologists believe that a systematic search would reveal additional reserves. Antimony ore has been shipped from the Fairbanks and Kantishna districts, and some tungsten has been produced at Hyder (in southeastern Alaska) and from the Fairbanks district. Tungsten mineralization has been reported at various places throughout the State.

Other metals that may have a place in Alaska's future include nickel and beryllium. Several large low-grade deposits of the nickel-and-iron-bearing mineral, pyrrhotite, are known, and potentially important deposits of beryllium-bearing fluorite were recently discovered on the Seward Peninsula.

As a potential source of mineral supply for America, Alaska stands well up among the States.

(Left) Thousands of sea lions rest on Sea Lion Rock, an isolated rookery near Amak Island in the Bering Sea. (Right) The Kodiak or brown bear is one of the largest species in the world, to which this member testifies.

## Fish and Wildlife

In the drama that is Alaska, fish and wildlife have played a key role from the very beginning. For the aboriginal Eskimo and Indian, they were one main source of food, clothing, and shelter. It was the luxurious fur of the sea otter that triggered exploration and brought the first settlers to the Great Land. Today, income from fish—mainly salmon—greatly exceeds that from any other natural resource. Here in the Land of the Midnight Sun, opportunities for the hunter, fisherman, nature observer, and photographer are among the best in the world.

### *Big Game*

Alaska has long been famous for its big game—its big bear, big moose, big herds of caribou, and big tales of the trophy hunter.

Alaska brown or Kodiak bears are the world's largest land carnivores. They are plentiful on Admiralty, Baranof, and Chichagof Islands, the Kodiak-Afognak group, and the Alaska Peninsula. Brown bears fishing for salmon are a favorite subject for many photographers. The slightly smaller grizzly bear roams widely throughout the Alaska and the Brooks Ranges and out onto the Arctic plain. Black bears range over most of Alaska. A rare, close relative variation of the black bear is a bluish colored variety known as the glacier bear. Alaska is perhaps best known for the white polar bear that stalks the ice packs off the northern Bering Sea and Arctic Ocean. It is solitary in habit, extremely capable of enduring its harsh environment, and rarely seen on land.

The Alaska moose is the largest member of the deer family. Bulls frequently exceed a





weight of 1,400 pounds, and antler spreads of more than 65 to 70 inches are not unusual. Moose are plentiful and widely distributed from the river valleys of the southeast mainland, west to the tip of the Alaska Peninsula, on the rolling table lands of the interior, and to within a few miles of the Arctic coast.

Some 300,000 caribou wander in endless journeys over central and northern Alaska. Both sexes bear antlers but those of the male are more massive. Caribou shed and renew their antlers annually. Along with moose, caribou provide the winter supply of meat for many Alaskans.

On the more than 1,100 islands of southeast Alaska, on those which dot Prince William Sound, and on Kodiak Island, the Sitka black-tailed deer is abundant. Generally back near the glaciers and high on the slopes of the jagged coastal mountains from Portland Canal to the Kenai, the sure-footed mountain goat feeds in natural protection. In the highlands of interior and Arctic Alaska is found the only all-white wild sheep, the white coat and the long curled horns of the Dall ram make it one of the most prized trophies of the North American continent.

### *Migratory Birds*

Migratory birds reach their Alaska nesting places not only from all four of the major North American flyways but also from the Pacific Ocean route, the Asiatic route, and the Arctic route. Some 414 species and subspecies of birds have been identified in Alaska and the list is still growing. Nearly half the birds on the Alaskan list are water birds.

In the spring, canvasback and greater scaup ducks from the Central Atlantic States move westward and then north to Alaska. Lesser scaup from the gulf coast, from the Caribbean islands, and from as far south as Panama head up the Mississippi flyway and on to the Alaskan marshes. A long list of species of eastern songbirds, including sparrows, wood warblers, thrushes, kinglets, and rusty blackbirds, also follow the Mississippi flyway. From deep in Mexico, white-fronted geese and pintail ducks travel up the central flyway to the valleys of the Yukon River. Pacific flyway ducks, shore

birds, and songbirds, follow the coast all the way north. But black brant and cackling geese, on the other hand, leave the British Columbia coast and fly 800 or more miles over water to the Alaska Peninsula.

Birds from the continental flyways mingle in Alaska with golden plovers, wandering tattlers, bristle-thighed curlews, and other shore birds that winter on the Hawaiian Islands and others in the mid-Pacific. From the Asiatic coast come the green-throated loon, rufus-necked sandpiper, Siberian rough-legged hawk, European wheatear, and the Alaskan yellow wagtail.

Probably the most spectacular migration in Alaska begins in the Aleutian and other Bering Sea islands and continues north, then east along the Arctic coast. Enormous flocks of eiders, emperor geese, scoters, cliff-nesting sea birds, and northern gulls can be seen each spring flying along the offshore leads in the ice pack and across points of land enroute to northern Alaska and Arctic Canada.

### *Resident Birds*

There are 177 species of birds that remain in Alaska the year around. The ptarmigan and the raven winter in the most inhospitable Arctic areas. Some 2,000 trumpeter swans—more than half the known population—live within Alaska. Each year they migrate from the interior valleys to wintering places in southeastern Alaska.

Alaska is of particular interest to the bird hunter. Within the State one or more of the three species of ptarmigan, and three other species of grouse, can be found near most communities. Fifty species of waterfowl have been identified in Alaska and 40 of these nest there. Included are 3 species of swans, 9 of geese, and 29 of ducks.

At Point Barrow and other Arctic points an almost steady stream of eiders and other sea ducks passes in September. On the Yukon Delta and the Alaska Peninsula, six species of geese, as well as a fine assortment of ducks, are found. In the south, the prolific Alaskan marshes produce black brant, cackling geese, and great numbers of white-fronted geese, Canada geese, scaup, pintails, green-winged teal, widgeons,



shovelers, and canvasbacks. A large portion of America's lesser sandhill cranes and whistling swan are produced in Alaska.

Other permanent bird residents are jays, woodpeckers, ravens, crows, chickadees, winter wrens, and some sparrows. Of interest to bird-watchers is the steller jay, a handsome blue-black, crested jay, the first specimen collected by the naturalist of the Bering expedition that discovered Alaska.

### *Fur Animals*

The search for fables led Russia to the discovery of Alaska in 1741. The value of the annual fur catch today is \$1,500,000. Each year 6,000 Alaskans buy licenses to trap. In numbers of pelts, muskrat trapping heads the list with a yearly take of 50,000 to 100,000. Mink and beaver follow with 15,000 to 25,000. Other important species include marten, land otter, white and blue fox, red, silver, and cross fox, lynx, ermine, hare, and squirrel.

Timber wolves are found everywhere from the islands of southeast Alaska to the Arctic coast, and as far west on the Alaska Peninsula as Unimak Island. They range in color from black to white in various shades and combinations. The wolves in Alaska are among the largest of their kind in America. While the average weight is 80 to 120 pounds, individuals weighing more than 150 pounds have been taken. The wolvetine is the largest member of the weasel family. Its frostproof fur is highly valued as trim for parka hoods.

### *Marine Mammals*

A surprising number and variety of sea mammals live in the waters off the coast of Alaska. Some, like the fur seal, are of great economic value; others, like the porpoise, are merely interesting.

The fur of the sea otter is unequalled in fineness, density, durability, and beauty. Gentle and trusting by nature, the sea otter was easy prey for hunters. Whole populations were wiped out. In 1911 further killing was prohibited. This provided an opportunity for the remnants of once abundant pods to become



Reindeer, shown here in full velvet, are herded to insure a steady means of support for Eskimos and other Alaskans.

Walrus, with their long tusks and thick hides, are a much sought after animal. This herd lolls in Tagiak Bay.

reestablished. Experimental harvesting of sea otters was undertaken in 1961 by the Alaska Department of Fish and Game in cooperation with the Fish and Wildlife Service.

The world-famous Alaska fur seal herd returns to the Pribilof Islands each summer. The islands, which lie about 300 miles off the mainland of Alaska in the heart of the Bering Sea, are the natural retreat and only breeding ground of the Alaska fur seal. Under international protection and management by the Fish and Wildlife Service, the herd has been restored; nearly 2.7 million sealskins have been taken since 1911. The net profit to the Federal Treasury from the United States' share of these skins has exceeded \$20 million.

Other species of seals found in Alaska's waters are the Pacific harbor seal, the ringed seal, the ribbon seal, and the Pacific bearded seal.

Sea lions are common along the Aleutian chain, on the Barten Islands, in Prince William Sound and on some of the islands in southeast Alaska. Males are generally twice as large as females, often measuring more than 10 feet and weighing as much as a ton.

Walrus inhabit the Bering and Chukchi Seas, riding ice floes northward in spring and early summer and southward during fall and winter. By always following the southern edge of the ice pack, the walrus has an area to haul out on immediately above a rich source of food. These huge animals attain a length of 11 to 13 feet. The State has created a sanctuary in Bristol Bay which includes the only known shore areas on the American side used by certain groups for hauling out.

Whales are the mightiest mammals that ever lived. The white baleen, and toothed whales frequent waters off the coast of Alaska. In May and June as the whales swim along open leads in the sea ice, they are eagerly hunted by Eskimos from St. Lawrence Island northward. A kill means an abundance of food for months ahead.

### *Fish*

A variety and abundance of fresh-water and salt water fish await the angler in Alaska. Steelhead are found in coastal streams from Dixon Entrance to Bristol Bay. Grayling





abound in the clear, fresh-water streams and lakes of the interior and on the Alaska Peninsula. The Dolly Varden and arctic char are native to virtually all the streams of the State. The cutthroat trout are limited to areas from southeast Alaska to the western end of Prince William Sound. At times Dolly Varden and cutthroat may be taken at sea where they travel in schools.

The lake trout is the largest of the chars and favors Alaska's deep, cold mountain lakes, the Arctic lakes, and those in the Bristol area. Northern pike is one of the largest, most plentiful, and least popular of Alaska's fresh-water fishes. Nevertheless, some are taken in the backwaters, sloughs, and lakes of interior Alaska. The sheefish, or inconnu, also is found in Alaska where it is native to the Kuskokwim, Yukon, Kobuk, and other large streams north through the Arctic. The sheefish is large, powerful, and a worthy antagonist. Ten to 25 pounds are common weights, but some over 80 pounds have been taken.

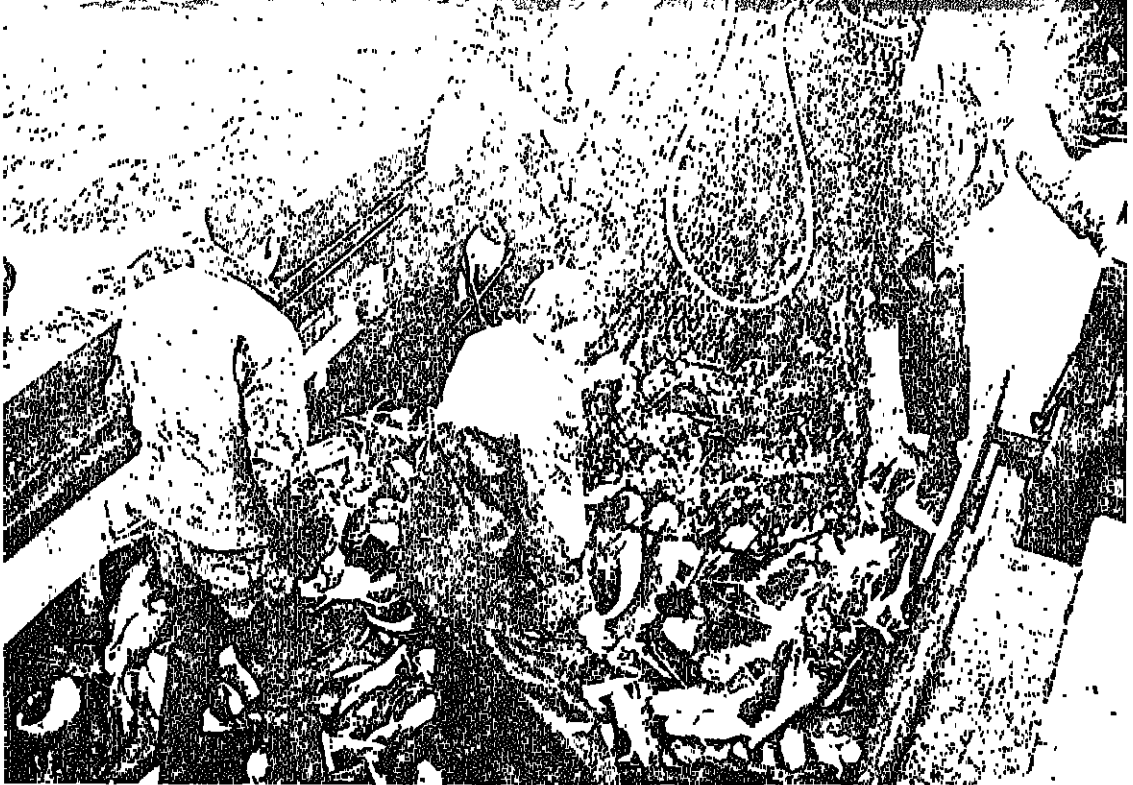
Rainbow trout are found in the coastal rivers from Dixon Entrance northward and in the tributaries of the Kuskokwim downstream from Aniak. Lakes rehabilitated by the State have been restocked with rainbows and a popular winter ice fishery has developed.

Highly prized by the salt water enthusiast are chinook, or king, and coho, or silver salmon. Both species are widely distributed and range north into the Arctic Ocean. They are most abundant in the coastal waters of the Pacific. Chinooks are available all year in the protected waters of southeast Alaska. They are deep-bodied, heavy fish. Catches in the 35- to 50-pound range are common in southeast Alaska.

Both chinook and coho salmon also contribute to commercial fisheries, for their rich flesh is of gourmet quality, especially when fresh, frozen, or lightly smoked. The other three kinds of Pacific salmon, however, yield even larger commercial harvest. These are the pink, red, and

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Brown bears usually keep to the thickets, except for excursions to the streams during the salmon season. Caribou stocked on Adak Island in 1958-59 increased sufficiently to permit an open season in 1964.



The yield of the sea affects nearly everyone from the commercial fisherman of the south to the Eskimo up north.

chum salmon, the fish that appear mostly in the brightly labeled cans on the supermarket shelves.

### *Commercial Salmon Fishing*

The annual salmon spawning drama has taken place in the Alaskan wilderness for eons. It provided such an abundance of food to the first human inhabitants of this land that they had spare time for the native art and craftwork in which they became so highly skilled. The salmon runs accounted for the surge of American industry into the State at about the turn of the century. The seemingly endless abundance of the adult salmon migrations astonished these newcomers, who immediately set about catching and canning as many as possible.

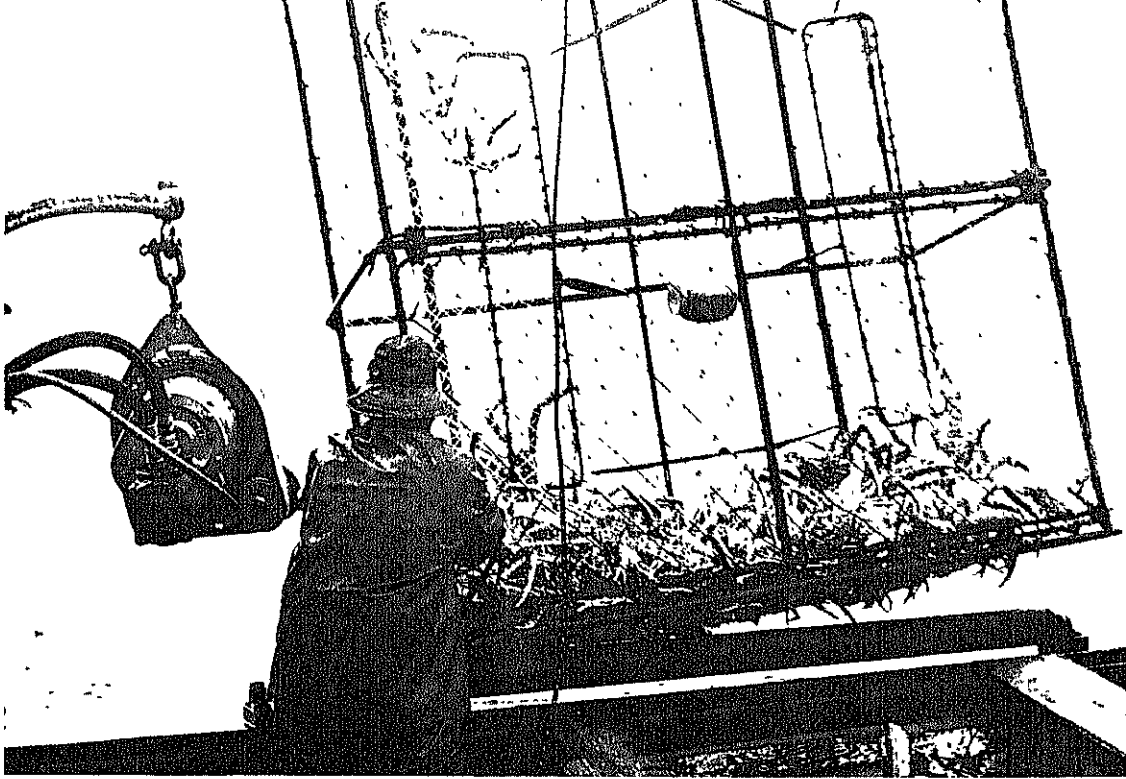
When the schools of migrating adults approach the coastline and begin their journey upriver, American fishermen harvest their share of the bounty. Trolling boats trail zigzagging silver spoons and twirling herring "plugs" to catch chinooks and cohos. Powerful purse seiners locate schools of salmon and encircle them with giant nets. Gill nets set along beaches and off mouths of major rivers ensnare

further portions of the runs. Fishwheels powered by river current and short sections of gill net exact a further toll to provide native inhabitants and their dogs with winter food. It is no wonder that the portion of the run that successfully eludes the fisherman to reach the spawning grounds is called "the escapement."

The early superabundance of salmon was rapidly skimmed off and the runs began a gradual decline that has only recently shown signs of reversal. The five species of Pacific salmon, however, still provide the lion's share of the Alaskan commercial fisheries production. Both ever-expanding store of knowledge about their life cycle and enlightened management measures now in effect assure the continuing restoration of these immensely valuable living resources.

### *Shellfish*

King and Dungeness crabs rank first and second respectively on the list of Alaskan commercial shellfish. Both are taken by baited wire-mesh traps called "pots" placed in continental shelf waters off Alaska. Russia and Japan also fish the valuable king crab stocks,



King crabs, which can weigh as much as 15 pounds each, are one of Alaska's most popular exports.

but these countries use tangle nets which they set on the bottom to ensnare the longlegged creatures. The delicate flavor of both types of Alaskan crab meat commands a premium market price.

Alaskan shrimp resources are harvested in a few places by means of pots and by trawls, which are large, bag-shaped nets dragged slowly along the ocean bottom. Several species are taken, but the tiny, flavorful pink shrimp provides the largest commercial harvest. The shrimp are cooked at the processing plant and meat is picked from the tails by hand for cold packing. Complicated machines to remove the meats have recently been brought to Alaska. Although such equipment can relieve workers of tedious hand picking, the resulting product is less flavorful and not as brightly colored as the hand picked meats.

#### *Commercial Fish*

Halibut are bottom-dwelling flatfish that are broadly distributed on the banks and shoals off the Alaskan coastline. Many who fish Alaskan waters in small boats have had the experience of being towed about helplessly by a solidly hooked halibut until the monster finally

settled into the depths and broke the line. Halibut sustain a large, valuable fishery. They are taken commercially by long lines of baited hooks strung along the ocean floor. Most halibut are frozen and glazed with ice before shipment to the "Lower 48," where they are cut into market-sized portions. Halibut taken in the fishery commonly weigh more than 100 pounds; the record is over 500 pounds. A truckload of glazed halibut of barn-door size is truly a sight to behold.

Herring are small, green-backed fish that occur in massive schools in many Alaskan waters. They live in constant peril, for they are fair game for most predaceous fish and for many sea birds and are an important food item for salmon. Herring have been extensively fished by means of commercial purse seine boats. The catch is cooked to produce meal and oil.

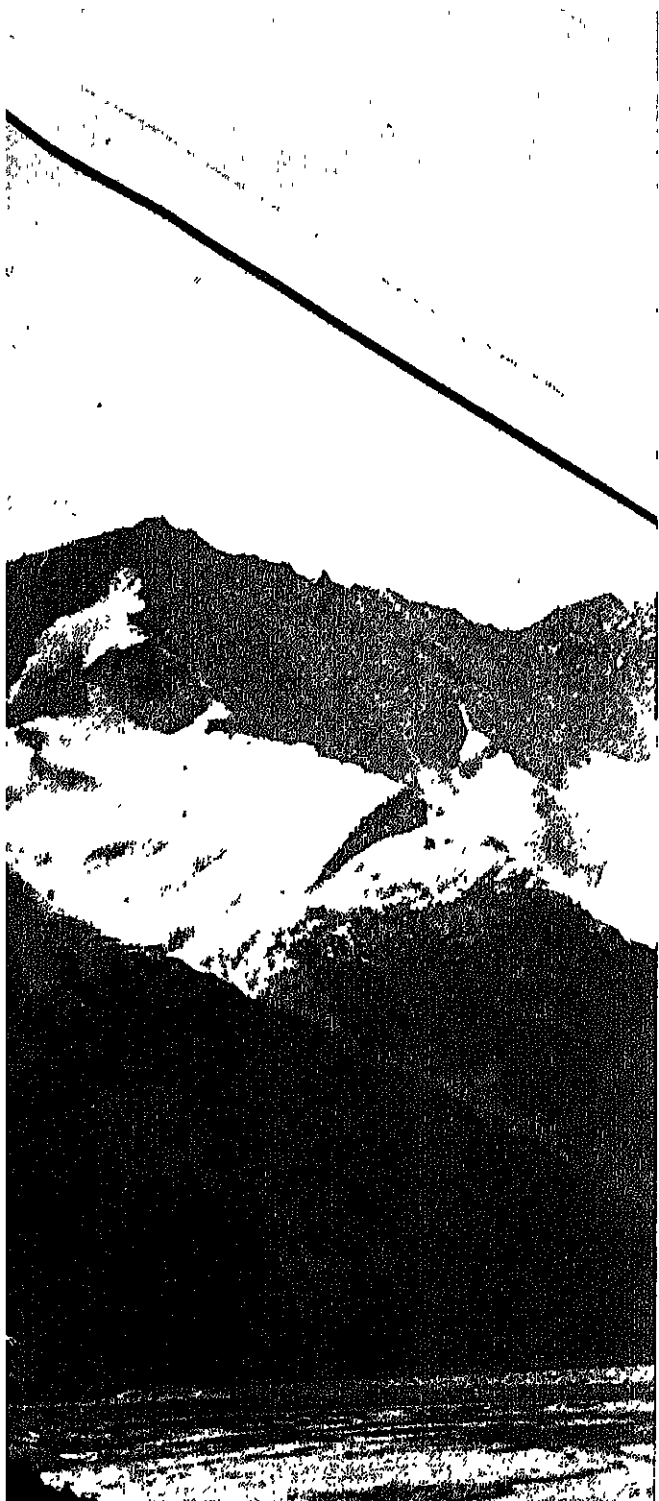
Many other Alaskan stocks, including abalone, scallops, cod, flounder, and rockfish are not commercially utilized at all, and their general numbers and distribution are not well known. The promise offered by these various species is one of the bright spots in Alaska's fishing future.

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## Outdoor Recreation



The skiing conditions are excellent to ideal almost all year round at Mt. Aleyska, not far from Anchorage.



Though tourism ranks fourth among the State's industries, Alaska's outdoor recreation potential has hardly been tapped. Planners estimate that use of Alaska's recreation resources will increase threefold to fifteenfold by 1970.

Alaska is one of the few remaining places where men still can find wilderness tranquility. Here, in this Great Land, there is the challenge and the opportunity to preserve for the future—to profit from the mistakes and poor planning that have plagued "last frontiers" down through history.

### *State Parks*

The Alaska State park system consists of 58 campgrounds, 8 picnic waysides, 2 historic sites, 1 recreation area, and 1 scenic wayside. About 50 of these campgrounds were taken over ready made from the Bureau of Land Management in 1959 when Alaska became a State.

Since the State park system is so new, it cannot yet offer resort hotels, fine lodges, electricity, cookhouses, community halls, nature guides, and organized activities. But the camping areas have other attractions. They are clean, uncluttered and secluded, well off the highways and away from the clusters of civilization, quiet and restful, with fish and wildlife undisturbed.

Although most of the campgrounds are near streams or lakes, they have no developed water systems. Most campers carry drinking water. Some purify stream water by boiling it for 20 minutes.

Many visitors wonder about the danger from bears and other wildlife in the campgrounds. The chances of dangerous wild animals wandering into well populated campgrounds are remote. Still, it is best not to leave open food in the area as a temptation to them.

Campers should always be careful with fire. Within the past 70 years more than three-fourths of Alaska's forest area has been burned over. In dry, remote areas, fighting forest and tundra fires is extremely difficult and expensive.

Further details on the recreation areas maintained by the State of Alaska are presented in an up-to-date, illustrated booklet, "Camping Under

the Midnight Sun." Free copies are available from: State Division of Lands, 344 Sixth Avenue, Anchorage, Alaska, 99501.

### *National Forests*

The two National Forests in Alaska are in coastal areas: the *Tongass* encompasses more than 16 million acres including the mainland strip and large offshore islands that make up the southeastern region of the State; the *Chugach* encompasses more than 4 million acres including the mainland strip around Prince William Sound, the islands within the sound, Afognak Island, and part of the Kenai Peninsula.

These forests offer diverse outdoor opportunities: spectacular landscapes dominated by mountains and glaciers; fresh-water, as well as salt water angling; abundant big game. For the adventurous and for those who like to picnic or camp at developed facilities close to civilization, Alaska has many attractions.

Mindful of the "last frontier" image that most people have about the 49th State, the Department of Agriculture's Forest Service has tailored a recreation improvement program to retain the natural quality of this country providing only the minimum conveniences that modern travelers have come to expect.

Public-use cabins are maintained in prime hunting and fishing areas, accessible only by charter planes or boats from neighboring communities. Also available are campgrounds designed for tents and trailers, and picnic grounds ranking with the best in the "Lower 48." These are at sites on National Forest lands within short driving distance of neighboring communities.

The Forest Service has also set aside two larger recreation areas: One at *Portage Glacier*, 50 miles southeast of Anchorage, and another at *Mendenhall Glacier*, 14 miles outside Juneau. At the Mendenhall Glacier is found the only facility of its kind in the world—a visitor center where forest naturalists are on hand to give the tourist information on glaciology and related subjects. This visitor center has become a worldwide attraction since it was first opened in 1962.

Two scenic areas have been set aside on the Tongass National Forest: the Rudyerd Bay-



Walker Cove area—60 miles east of Ketchikan; and the Tracy Arm-Fords Terror area, accessible by charter boat from Juneau. Attractions include Indian villages, totem poles, and community houses from the totemic culture; historical evidence of early Russian influence in Alaska; and ruins of old gold mining operations.

Recreation map folders are available from the Regional Forester, U.S. Forest Service, Box 1631, Juneau, Alaska, 99801.

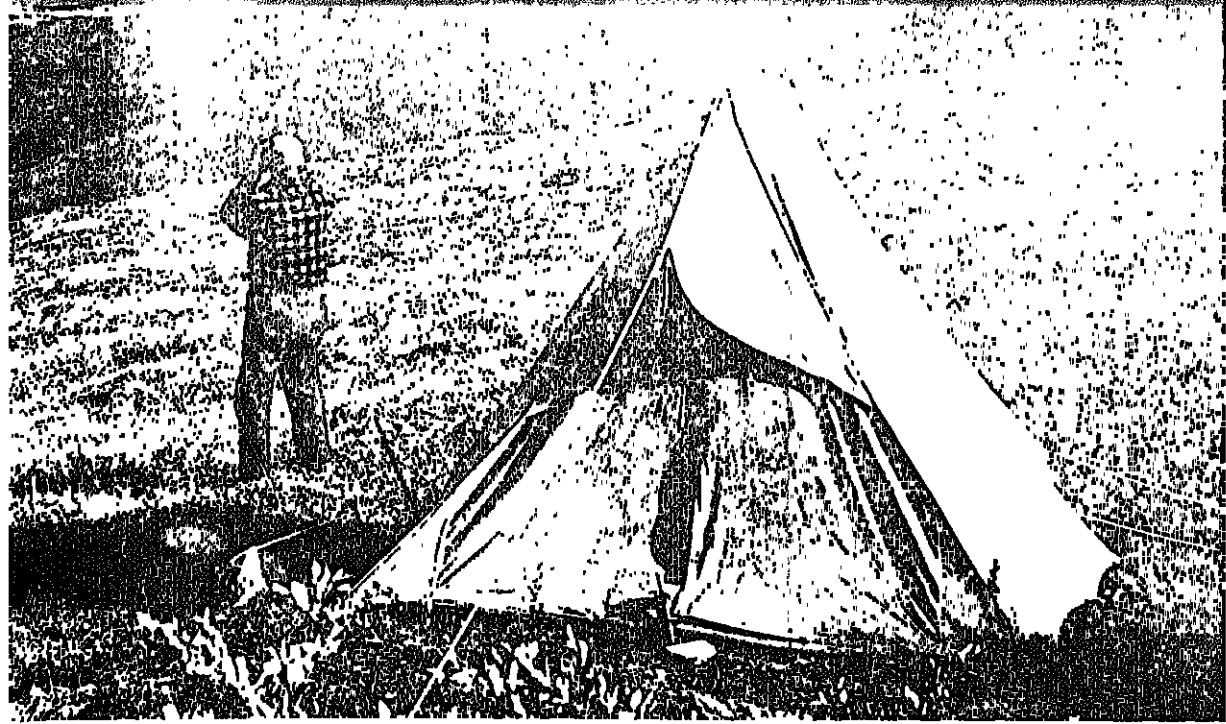
### *National Parks and Monuments*

Of the four largest units of the National Park System, three are in Alaska—Mount McKinley National Park, Glacier Bay National Monument, and Katmai National Monument. These three, plus the small Sitka National Monument, total approximately 10,830 square miles, less than 2 percent of the State's vast area. In addition, 15 sites in Alaska are now registered National Historic Landmarks.

Within *Mount McKinley National Park*, and just 250 miles south of the Arctic Circle, stands ice-and-snow-shrouded Mount McKinley. More than 20,320 feet from base to peak, it is the highest mountain in North America.

The park, established in 1917, contains 1,939,-





Opportunities for wilderness camping are unexcelled.

493 acres and several large glaciers of the Alaska Range. Caribou, Dall sheep, moose, grizzly bears, wolves, other animals, and many birds inhabit the park, where the terrain varies from 1,400 to 20,320 feet in elevation and is cut by several broad rivers.

Extending from 2,500 to 3,000 feet above sea level is the circumpolar forest belt, predominantly coniferous. The forest floor is covered with moss and lichens; the open spaces with shrubs and berry bushes. Above the timberline, where most of the park lies, is rock, ice, and alpine tundra, both wet and dry, where wildflowers bloom in summer.

The hotel and park headquarters are at the park entrance, served by the Alaska Railroad and by the Denali Highway which is passable from June 1 to September 15. The park is also served by airlines from Fairbanks and Anchorage, and the airport near the hotel may be used by private aircraft. Foot trails start from the hotel, and visitors may arrange for cross-country hikes.

The park road, open from June 1 to September 10, winds parallel to the Alaska Range, penetrating the park's scenic interior. The road leads to seven campgrounds; to the Eielson Visitor Center with its museum and displays;

through rolling tundra to Wonder Lake; and to Camp Denali, a small resort just outside the northern boundary. For a few days in late June or early July thousands of migrating caribou may be seen from the park road.

Visitors are advised to prepare for wet weather and for temperatures ranging from freezing to 80 degrees. Information may be obtained from the Superintendent, Mount McKinley National Park, McKinley Park, Alaska, 99755.

*Glacier Bay National Monument* consists of more than 2 million acres. It is over 90 miles wide and stretches some 70 miles along the southeast coast of Alaska. Here is the world's most spectacular display of great tidewater glaciers, and here also is a wilderness of forests and snow-clad peaks. Here live the coastal brown bear; grizzlies; black bear; the rare glacier bear; Sitka blacktail deer; mountain goats in lofty crags; porpoises and seals in the bay; and great numbers of waterfowl.

The monument lies between two parallel mountain ranges loftier than any in the United States outside Alaska. On the east is St. Elias Range, largely unmapped and unexplored. To the west lies the snowy Fairweather Range culminating in 15,320-foot Mount Fairweather.

Glacier Bay itself, with its branching tidal

inlets, extends about 50 miles inland. It is fed by glaciers that descend from the surrounding mountains. Islands stud the Bay, some low and densely wooded, others steep and largely treeless and are used as rookeries by thousands of seabirds. Small bays of great beauty also indent the monument's coast.

Headquarters for the monument is at Bartlett Cove, about 100 miles from Juneau by boat and half an hour by air. Small boats require charts and need about a day for the trip; storms are frequent, and there is danger from falling glacier ice. Several American and Canadian companies offer tourist cruises. Travel information is available from the Alaska Visitor's Association, Juneau; other information, from the Superintendent, Glacier Bay National Monument, Box 1781, Juneau, Alaska, 99801.

Remote, wild KATMAI NATIONAL MONUMENT with 2,697,590 acres on the Alaska Peninsula, is larger than any other park or monument in the National Park System. It is also the home of the world's largest land carnivore, the big coastal brown bear. The monument's 100 miles of ocean bays, fiords, and lagoons are backed by the Aleutian Range of glacier-covered peaks and volcanic-crater lakes. Behind these lies a wilderness of forests, great lake chains, and the famous Valley of Ten Thousand Smokes which, though now almost inactive, was the scene in 1912 of one of the greatest volcanic eruptions in history.

Isolated Katmai can be reached only by the three airlines which serve the King Salmon air terminal. From here bush planes on floats make regular flights to the Brooks River and Grosvenor Lake Camps from June 1 through September. These camps, on great inland lakes, have cabins, mess halls, and tents with wooden frames, floors, and oil heaters. Visitors may camp anywhere, however, after obtaining a fire permit.

Sightseeing trips by small boats go from lake to lake, sometimes with a short portage between lakes. Bus trips to the Valley of Ten Thousand Smokes leave from the Brooks River area. Float planes fly above fiords, lagoons, and waterfalls, over the Valley of Ten Thousand Smokes, and over the lake-filled craters of Mount Katmai and Kaguyak Volcano.

Visitors can see moose as well as bald eagles, swans, ducks, geese, and other birds. The area is mostly treeless, although there are grasses and low-growing plants and there are some spruce forests. Fishing is permitted, but Alaska State licenses are required and visitors should obtain a copy of fishing regulations—as well as other information—from the Superintendent at Mount McKinley National Park. Visitors should be prepared for violent wind and rainstorms.

*Sitka National Monument*, 54 acres on Baranof Island in southeastern Alaska, was established in 1910 to preserve the stockade site where the Sitka Indians made their last stand against the Russian settlers, and to protect an outstanding collection of totem poles that symbolize the histories and legends of Indian families and clans.

European navigators came to the area in the early 1700's. They were followed throughout the 18th century by merchant ships from Spain, England, Russia, and the United States which came to trade for sea otter skins. In 1799 the Russians established a fortified post, which was destroyed by the Indians in 1802. Two years later the Russians drove the Sitkas out and rebuilt their settlement 6 miles from "Old Sitka" where the monument is now located.

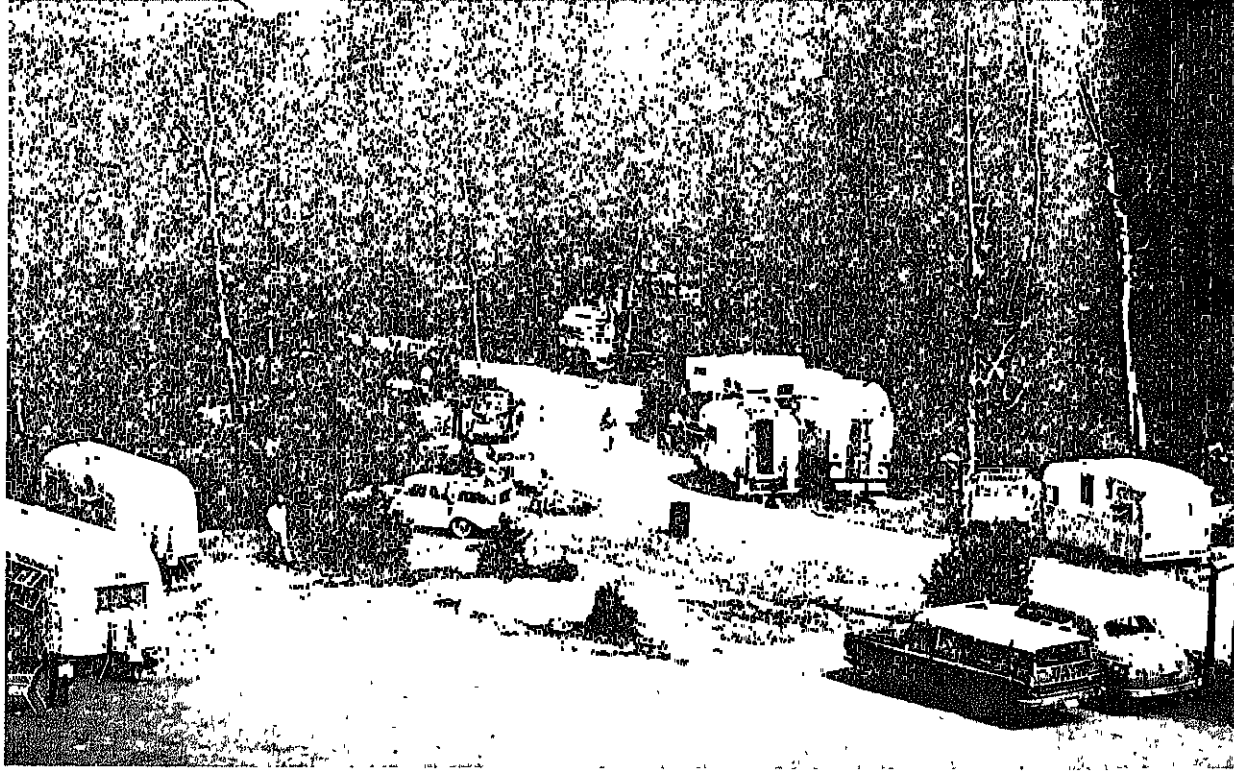
### *National Wildlife Refuges*

*The Kenai National Moose Range*, within easy travel of Alaska's main population center provides recreation for more than 150,000 visitors a year. Extensive river systems and hundreds of lowland lakes lure fishermen and boating enthusiasts. The range has long been famous for big game hunting. A spectacular mountain and glacier system attracts wilderness travelers and photographers. Although wilderness-type camping is done throughout the range, 14 public campgrounds have been developed along a recreational road system. Rapidly expanding canoe route systems, hiking trails and horse trails lead to places where visitors may enjoy the natural features of the area. Yet the trails also preserve the undisturbed environment necessary for the wildlife resources.

*The Kodiak National Wildlife Refuge*, world famous as the home of the Kodiak brown bear,



Recreation at Finger Lake campground includes boating and fishing in summer, skating parties in winter.



provides hunters from many lands with trophies and with opportunities for photographic trips. Steelhead and silver salmon fishing is a memorable sidelight of hunting trips.

*The Izembek National Wildlife Range* has unexcelled waterfowl and ptarmigan hunting in a wilderness setting inhabited by the brown bear and caribou. The range is a wild land flanked by snowcapped volcanos and stormy seas.

*The Arctic National Wildlife Range* in the northeast corner of Alaska is an extensive area of undisturbed, arctic environment with wide opportunities for hunting, fishing, wilderness travel, and scientific study. Many other refuges, although remote and without visitor facilities, provide rewards to the well-equipped and self-sustained wildlife observer.

All areas of the National Wildlife Refuge System, dedicated to the welfare and enhancement of fish and wildlife values, are managed by the Fish and Wildlife Service.

### *Recreation on Public Lands*

Six campgrounds are maintained on public lands in Alaska.

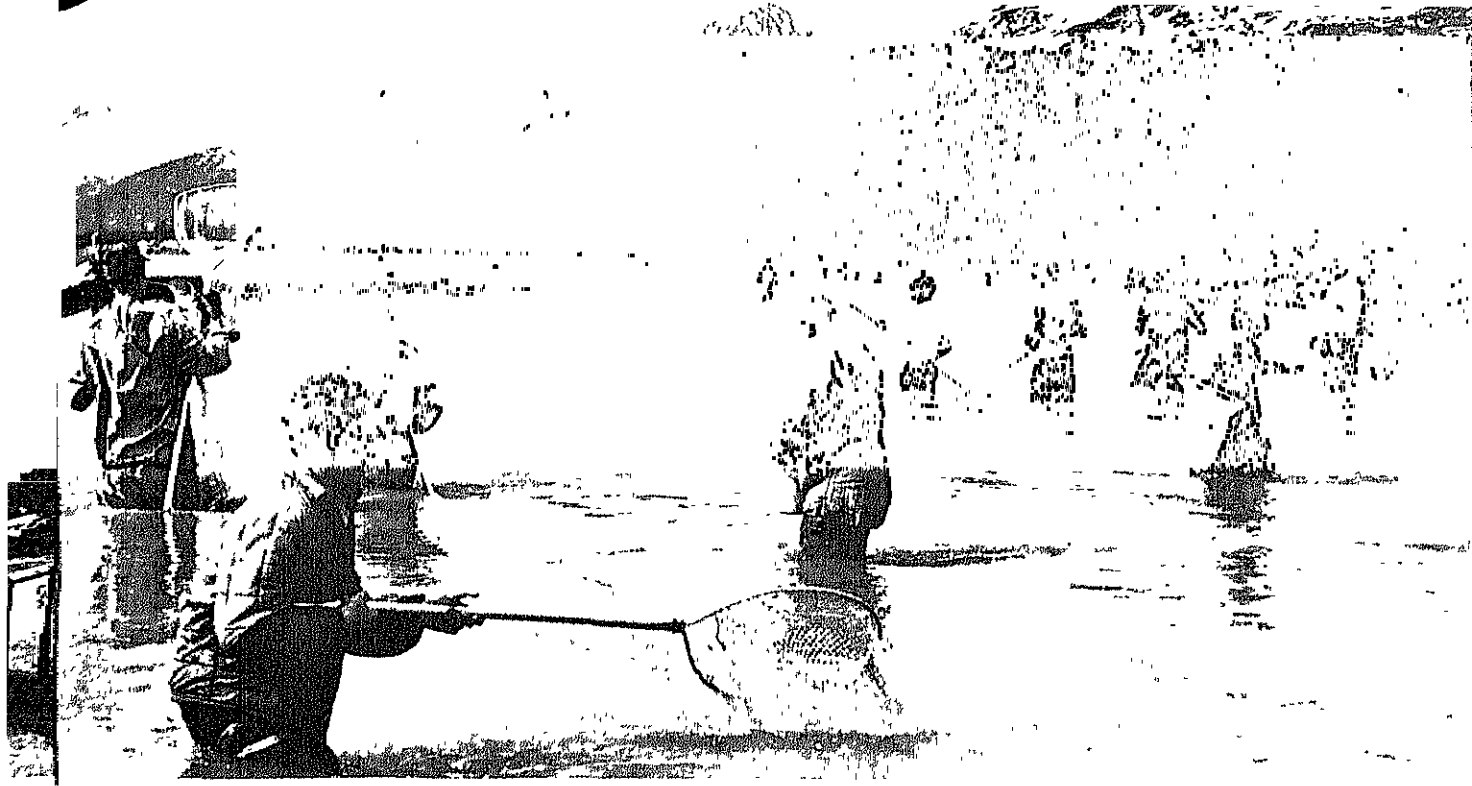
The Eklutna Basin, nestled in an Alpine-like canyon 23 miles north of Anchorage on Alaska Highway 1 and then east 8 miles on gravel road,

has 30 family-unit campsites. Fresh water, glacial streams with beautiful waterfalls, and large spruce and cottonwood trees decorate the area. The toe of Eklutna Glacier is at the far end of the canyon. Dall sheep and mountain goat usually can be seen along the canyon walls. Bear, moose, fox, coyote, ptarmigan, and spruce grouse also inhabit the basin.

Fifty miles north of Anchorage in the Palmer area, the Finger Lake 10-family unit campground is easy to reach. Fishing there is superb in early spring. In summer there are many boating and water-skiing enthusiasts at Finger Lake, and in winter skating parties and ice fishing are main attractions.

Because of its location, mile 1422 of the Alaska Highway, the Big Delta campground is often filled to its six-unit capacity. The area is level and its beauty is enhanced by thick stands of spruce. An adjacent landing strip offers a convenience to air-minded recreationists. Bison roam the area, waterfowl abound in nearby lakes, and clearwater streams boast excellent trout fishing.

The 10-family unit Eagle Campground is at the north end of the Taylor Highway near the Yukon River; near historic Fort Egbert military site; and near the frontier town of Eagle, first incorporated "city" in Interior Alaska. Float



trails make it possible to launch a boat at Dawson City, Canada, to cruise down the Yukon to Eagle, Circle, or Tanana; and then follow the Tanana and Chena Rivers to Fairbanks. The Eagle area is unrivaled for hunting, fishing, sightseeing, nature study, berry picking, and even prospecting.

Float-equipped aircraft are needed to get to remote Mankomen Lake Recreation Area, several minutes flying time east of Paxson Lake. Especially appealing are its scenery, big game, good fishing, and lack of crowds.

One hundred-twenty miles north of Anchorage, Byrd Lake is a few minutes by air from Talkeetna. The only way to get there now is by float plane; however, a highway is being constructed. Often a dozen planes at a time are seen on the lake. There is good moose and bear hunting and outstanding fishing. Among its other scenic values is a breathtaking view of Mt. McKinley.

#### *Private Recreational Services*

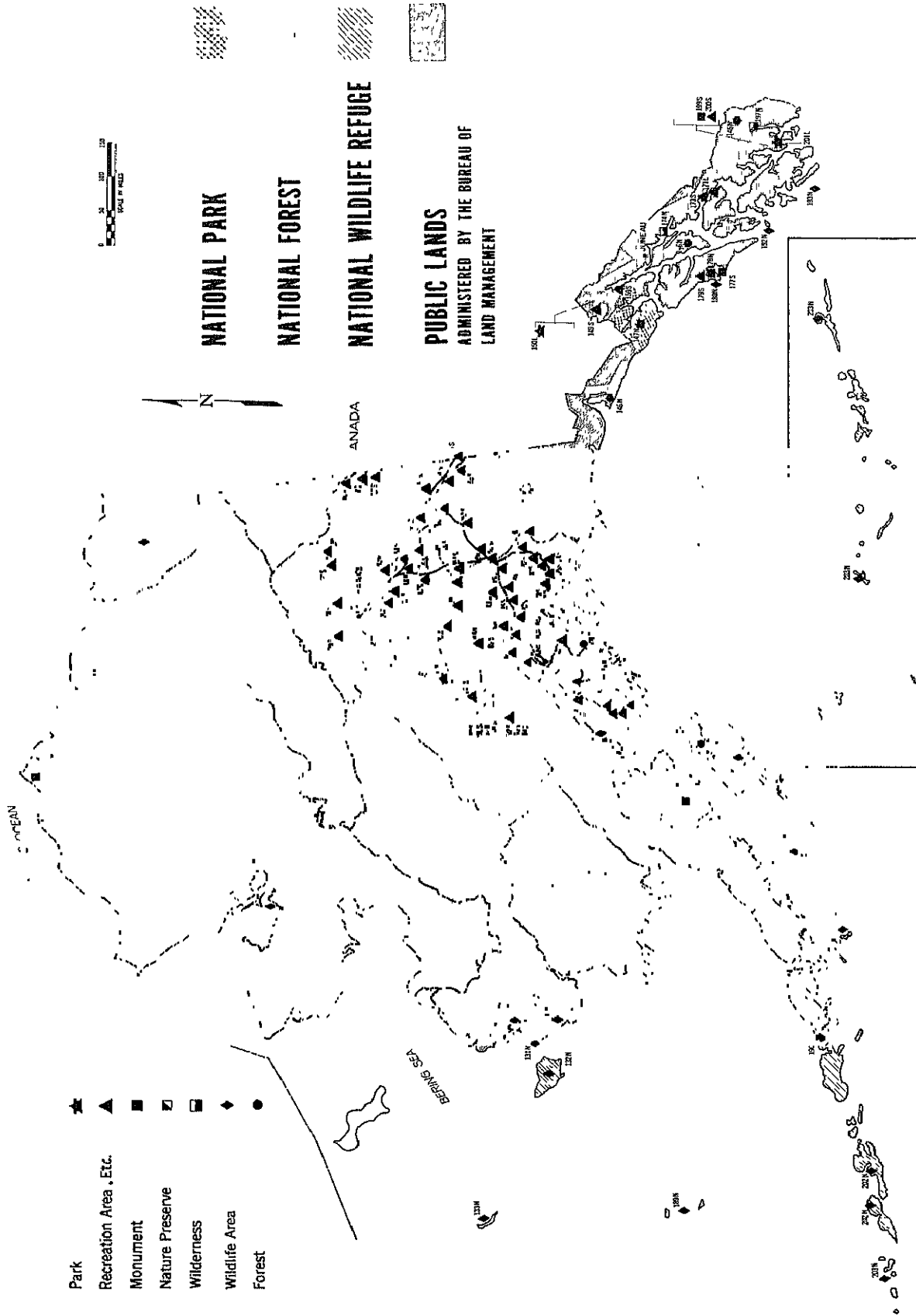
Private enterprise in Alaska also finds a growing opportunity in serving the needs of outdoor recreationists. Commercial airlines, bush pilots, hotels, ski resorts, professional guides for big game hunters, photographers,

(Left) The Kenai Peninsula, known for big game and woodland scenery, attracts thousands of visitors.

(Above) The Chugach Mountains frame this lake where anglers of all sizes are eager to join the Eulachon catch.

sporting goods stores, gift shops, and dozens of other businesses all cater to the tourist trade as well as to local recreationists. Several airlines stage guided tours to all parts of the State, including the remote Eskimo village of Barrow. Some 250 professional guides supplement their income by working with trophy hunters and sportsmen from all over the world. Skiing is popular in 13 developed areas. At Mt. Alyeska near Anchorage double chair lifts are in use. On the upper slopes skiing is a year-round sport.

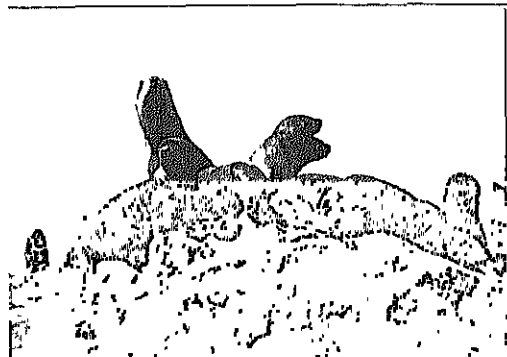
Information tables listing major Federal, State, and local recreation areas in Alaska and a location map appear on the following pages. The acreage, type of visitor use, and outdoor activities available at the various parks, forests, and recreation sites can be found by reading across the table.




# Alaska Outdoor Recreation Guide

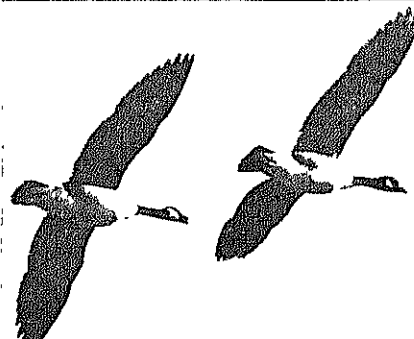
## How To Use This Guide

Information on major areas offering recreation is given in the listings on the following pages. Each area can be located on the map by matching its number with the corresponding number on the map. Symbols on the map represent types of areas. Letters after the numbers refer to Federal (N), State (S), local (L), and quasi-public and private (P). Only major interstate highways and major cities are shown on the map. A road map will provide exact routes to those areas you may wish to visit.

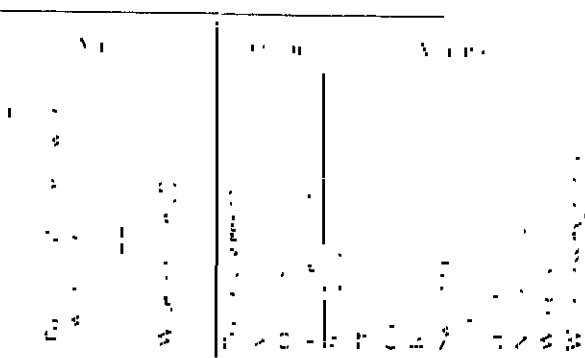


## FEDERAL

		Acreage		Type of use		Activities													
		Land	Water	Recreational	Other	Vacation	Out-of-State target	Tourist en route	Picnicking	Hiking and riding	Camping	Boating	Swimming	Fishing	Hunting	Nature study	Winter sports	Wilderness experience	
																			
FEDERAL																			
Park: Mount McKinley National Park	36N	1,939,359	2,000	x	x	x	x		x	x	x		x		x		x		
Recreation areas:																			
Delta Junction (BLM)	48N	18		x	x		x	x		x									
Finger Lake (BLM)	97N	47	360	x	x		x	x		x	x	x	x						
Monuments:																			
Scientific:																			
Katmai National Monument	137N	2,697,590	L	x	x	x	x		x	x	x		x		x		x		
Glacier Bay National Monument	147N	2,274,248		x	x	x	x		x	x	x		x		x		x		
Historic: Sitka National Monument	178N	54		x		x	x	x											
Forests:																			
Chugach National Forest	77N	4,726,082	L	x	x	x	x	x	x	x	x		x	x	x	x	x	x	
Tongass National Forest	146N	16,015,912	L	x	x	x	x	x	x	x	x		x	x	x	x	x	x	
Wilderness:																			
Tracy Arm Scenic Area	174N	57,600		x	x	x	x					x				x		x	
Rudyard Cove Scenic Area	197N	101,760		x	x	x	x					x				x		x	
Wildlife areas:																			
Arctic National Wildlife Range	2N	8,900,000	L		x	x			x	x			x	x	x		x		
Chamisso Island National Wildlife Refuge	4N	641														x			
Kenai National Moose Range	116N	2,057,197	L	x	x		x	x	x	x	x	x	x	x	x	x		x	
Tuxedni National Wildlife Refuge	123N	6,439														x			
Clarence Rhode National Wildlife Range	130N	1,890,000	L													x			
Hazen Bay National Wildlife Refuge	131N	6,800														x			
Nunivak National Wildlife Refuge	132N	1,109,384	L													x			
Bering Sea National Wildlife Refuge	133N	41,113														x			
St. Lazaria National Wildlife Refuge	180N	65														x			
Kodiak National Wildlife Refuge	186N	1,815,000	L	x	x	x		x	x		x	x	x	x	x	x		x	
Semidi National Wildlife Refuge	187N	8,422														x			
Pribilof Islands Reservation	189N	49,173														x			
Izembec Bay National Wildlife Range	190N	415,360	L													x			
Simeonof National Wildlife Refuge	191N	10,442														x			
Hazy Island National Wildlife Refuge	912N	42														x			
Forrester Island National Wildlife Refuge	193N	2,832														x			
Bogoslof National Wildlife Refuge	202N	390														x			
Aleutian National Wildlife Refuge	203N	2,720,235	L		x	x								x	x	x		x	

	Number on map	Acreage		Type of use			Activities											
		Total land and water within area	Water surface (?)	Day and weekend	Vacation	Out-of-State target	Tourist en route	Picnicking	Hiking and riding	Camping	Boating	Swimming	Fishing	Hunting	Nature study	Winter sports	Wilderness experience	
FEDERAL —Continued																		
Public lands (2):																		
Eklutna Lake . . . . .	6N	12, 000	15, 000	x	x	x		x	x	x	x		x	x	x	x	x	x
Finger Lake . . . . .	19N	40	200	x				x		x	x	x	x	x				
Mankomen Lake . . . . .	33N	8, 700	10, 000	x	x	x	x		x	x	x		x	x	x	x	x	x
Byer Lake . . . . .	44N	2, 200	700	x	x	x	x		x	x	x		x	x	x	x	x	x
Big Delta . . . . .	52N	18		x		x	x	x		x								
Eagle . . . . .	80N	1, 625	500	x	x	x	x	x	x	x	x	x		x	x	x		x
STATE																		
Recreation areas:																		
Liberty Creek Campground Wayside . . . . .	17S	3			x		x	x		x			x	x				
American Creek Campground Wayside . . . . .	18S	2		x	x		x			x			x	x				
Ketchum Creek Campground Wayside . . . . .	20S	3		x	x		x			x			x					
Bedrock Creek Campground Wayside . . . . .	21S	15		x			x			x	x		x	x				
Harding Lake No. 1 Campground Wayside . . . . .	25S	5	700	x	x		x	x		x	x	x	x			x		
Salcha River Campground Wayside . . . . .	26S	41		x	x		x	x		x	x		x	x				
Chatanika River Campground Wayside . . . . .	28S	9		x	x		x	x		x	x		x	x				
Tolovana River Campground Wayside . . . . .	29S	9		x	x		x	x		x			x	x				
Brushkana Creek Campground Wayside (4) . . . . .	37S	65		x	x		x	x		x			x	x				
Clearwater-Denali Campground Wayside . . . . .	39S	135		x	x		x	x		x			x	x				
Lake Louise Picnic Wayside (4) . . . . .	43S	20	15, 000	x			x	x		x	x		x	x	x	x		
Tangle River Campground Wayside (4) . . . . .	45S	3		x	x		x	x		x	x		x	x				
Tangle Lakes Campground Wayside (4) . . . . .	46S	10	600	x	x		x	x		x	x		x	x				
Donnelly Creek Campground Wayside . . . . .	47S	20			x		x	x		x			x	x				
Tolsona River Campground Wayside . . . . .	49S	40		x			x			x			x	x				
Dry Creek Campground Wayside . . . . .	50S	40		x	x		x			x					x			
Paxson Lake Campground Wayside . . . . .	53S	4	7, 000	x	x		x	x		x	x		x	x	x	x		
Clearwater-Alcan Campground Wayside . . . . .	54S	48		x			x			x	x		x					
Sears Creek Campground Wayside . . . . .	55S	40		x	x		x			x					x			
Moon Lake Campground Wayside . . . . .	56S	22	100	x	x		x			x	x	x	x					
Ahtell Creek Campground Wayside . . . . .	57S	10		x	x		x	x		x			x	x				
Clearwater-Slana Campground Wayside . . . . .	60S	480			x		x			x			x	x				
Tok River Campground Wayside . . . . .	61S	4		x	x		x			x					x			
Lakeview Campground Wayside . . . . .	64S	12	100	x	x		x			x	x		x		x			
Deadman Lake Campground Wayside . . . . .	65S	20	100	x			x			x	x	x	x	x				
Gardner Creek Campground Wayside . . . . .	66S	10		x			x			x			x					
Liberty Falls Campground Wayside . . . . .	69S	10		x	x	x	x	x		x			x					
One Mile Lake Campground Wayside . . . . .	70S	8	100	x			x	x		x	x		x					
Blueberry Lake Campground Wayside . . . . .	74S	192	4	x	x	x	x	x		x			x					
Twelve Mile Picnic Wayside . . . . .	75S	15				x	x	x	x								x	
Nine Mile Picnic Wayside . . . . .	76S	5		x			x	x										





(2) *Recreation areas on lands administered by the Department of the Interior's Bureau of Land Management.*

Playing a vital role in agriculture, in power production, in industry, and in recreation, Alaska's abundant water supply is one of the State's greatest resources.

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## Water and Power

In terms of income from natural resources, Alaska's waters have been more valuable than her lands. In terms of potential hydroelectric power, her water resources are still virtually untouched, waiting to be harnessed and put to future use in building the State.

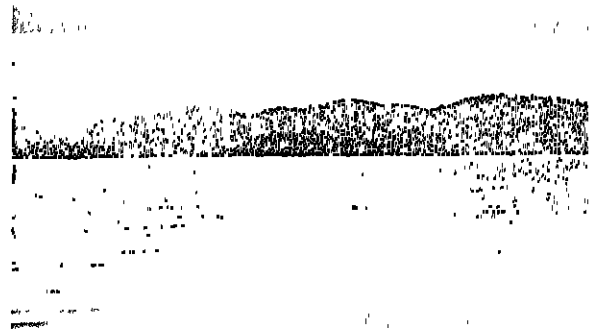
In the early days, Alaska's waters were the lifeblood of the flourishing mining industry—both for working the gold fields and for transportation. The coastal rivers and streams support the great salmon runs that have helped to make fishing a major Alaskan industry.

Alaska's water resources are extensive and impressive. There are approximately 3 million fresh-water lakes of 20 acres or more in area in Alaska and about 10,300 streams and rivers with a combined length of over 82,000 miles. The total annual runoff of Alaska streams is estimated to be about 300 million acre-feet, about half of which comes from the Yukon River.

### *Ground Water*

Little use is made of underground water resources in Alaska; most public water systems use surface supplies. Exceptions are Anchorage, which obtains part of its supply from wells; Fairbanks, where most of the supply comes from wells; and Juneau, which recently began using ground water.

The present small populations and generally undeveloped condition of the State have not yet created a heavy demand for ground water, but with continuing municipal, industrial and population growth, ground water will become increasingly important. The use of ground







Above is the site of the proposed Rampart Dam project on the Yukon River 100 miles northwest of Fairbanks.

water in Alaska is also complicated by the high iron content and organic matter of the water. Freezing conditions called Permafrost in western and northern Alaska, and scarcity of the aquifer water supply in the southeastern part, are also major problems

#### *Hydroelectric Power*

Alaska has a tremendous hydroelectric power potential. Approximately 18 million continuous kilowatts, producing 160 billion kilowatt-hours of energy annually, could be developed at identified sites about four times the present combined capability of all Federal projects in the Columbia River Basin. The peak load for all of Alaska is about 200,000 kilowatts, but estimated future load growth for the next 10 years is about 7 percent a year, a little larger than the national average.

Present hydroelectric development consists of small plants serving limited geographic areas. The largest of these plants is the Bureau of Reclamation's 30,000-kilowatt Eklutna Project which serves the Greater Anchorage area and the famous Matanuska Valley. Another in this area is the 15,000-kilowatt Cooper Lake Plant on the Kenai Peninsula, operated by the

Chugach Electric Association. Other smaller plants serve the Fairbanks, Juneau, Ketchikan, Metlakatla, Petersburg, and Sitka areas.

#### *Federal Projects Authorized*

Two relatively small hydroelectric projects have been authorized for Federal construction. The Crater-Long Lakes Division of the Snettisham project, now in the preconstruction stage, will have 60,000 kilowatts and serve the Juneau-Douglas area. The Bradley Lake project on the Kenai Peninsula has been authorized, but construction funds have not yet been appropriated. It would have a capacity of 64,000 kilowatts and, with an accompanying transmission system, could help support loads in the fast growing Anchorage area.

However, with the present rate of development of natural gas in the Cook Inlet area and the lowering cost of production of electric energy, both from gas and mine-mouth coal plants, projects such as Bradley Lake will probably supply reasonably priced peaking power.

#### *Power From Alaska's Rivers*

Of the large hydroelectric potentials of the

State, the Yukon River is the most impressive. One of the great rivers on the North American continent, it rises in the Yukon Territory of Canada and drains a total area of 330,000 square miles, of which approximately 220,000 lie within Alaska. The Yukon flows in a gigantic arc across the highlands of the State to empty into the Bering Sea more than 1,800 river miles west of the river's origin. Twelve hundred miles of the main stem lie within the boundaries of Alaska.

The major power development on the Yukon could be the Rampart site which could have a capacity of 5 million kilowatts and an annual energy output of 34 billion kilowatt-hours, one of the largest hydroelectric developments in North America. Its storage capacity would equal 1.3 billion acre-feet of water, making it the biggest reservoir in the world. With a surface area of nearly 7 million acres, the reservoir would be larger than Lake Erie and it would take about 20 years to fill. Proposed location for the huge dam is near the geographic center of the State, 756 miles upriver from the mouth of the Yukon.

Of course, other factors besides power potential of the Rampart site must also be considered. Studies are now underway to determine probable impact on the Alaska Natives in the area; effect on fish, migratory waterfowl, and wildlife; and the influence on other natural resources; recreation; and the general economy of the State.

A second major development under consideration on the Yukon is the Woodchopper site at the headwaters of the proposed Rampart reservoir. It would have a capacity of 2,160,000 kilowatts and would generate 14 billion kilowatt-hours of energy annually.

Upstream from Woodchopper, the Yukon-Taiya site could provide for diversion of part of the Yukon River flow through the coastal mountains where it would develop about 2,200 feet of head in a powerplant near tidewater. This huge project would have 3,200,000 kilowatts of capacity and would generate 21 billion kilowatt-hours annually. It would be an international project, for the water would be diverted from Canada. The powerplant would be located near Skagway, Alaska.

Another major potential development is on

the Copper River, the State's third largest. The Copper River Basin lies in Alaska's south-central region, north of the massive Coastal Range. The Wood Canyon site could accommodate the construction of the world's highest dam with a maximum height of more than 1,000 feet above streambed. The powerplant could have a capacity of 3,600,000 kilowatts and an annual energy production of 22 billion kilowatt-hours.

These are only the largest of the many hydroelectric potentials that could be developed. There are also many smaller projects that could furnish power for industries and municipalities in remote parts of the State.

The extremely cold and prolonged winter in the interior and northern regions of Alaska, the remoteness of some potential damsites, density of population, existence of assured markets, and possible effects on fish, wildlife, and other natural resources are all factors to be evaluated in planning the development of water power for the State.

Under present conditions, many sites would not be economically feasible for development. However, as Alaska develops, there will be an increasing need for the development of its water and power.

### *Water Pollution*

Water pollution in Alaska is not a statewide problem at the moment, although in numerous areas such pollution is becoming serious. Raw sewage discharge in the greater Anchorage area has resulted in gross pollution of Cook Inlet. The threat to groundwater quality in both the Fairbanks and Anchorage areas, is due to subsurface sewage disposal in the fringe areas where there are no municipal sewage collection systems.

Mining and construction have resulted in local silting of streams and concurrent damage to fishery resources. Waste discharged from seafood canneries, pulp mills, and oil producing corporations poses a threat to both stream and coastal water quality in the Kenai Peninsula and in southeastern Alaska. Waste collection and treatment facilities at native villages, municipalities, industrial and military installations, and similar sites would eliminate the more serious pollution problems.

## Land and Forests

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"Free land" was the cry that has rolled across the prairies, resounded over the deserts, and boomed from the mountain peaks of America for more than a century. It lured settlers in the covered wagon days of the Early West. Now, the cry is "Free land in Alaska!"

True, Alaska does have ample land, but it is not free—and never has been. Even the homesteader pays much in sweat of the pioneer brow, in sacrifice in living standards, in hardship, in heartache, and in heavy expense.

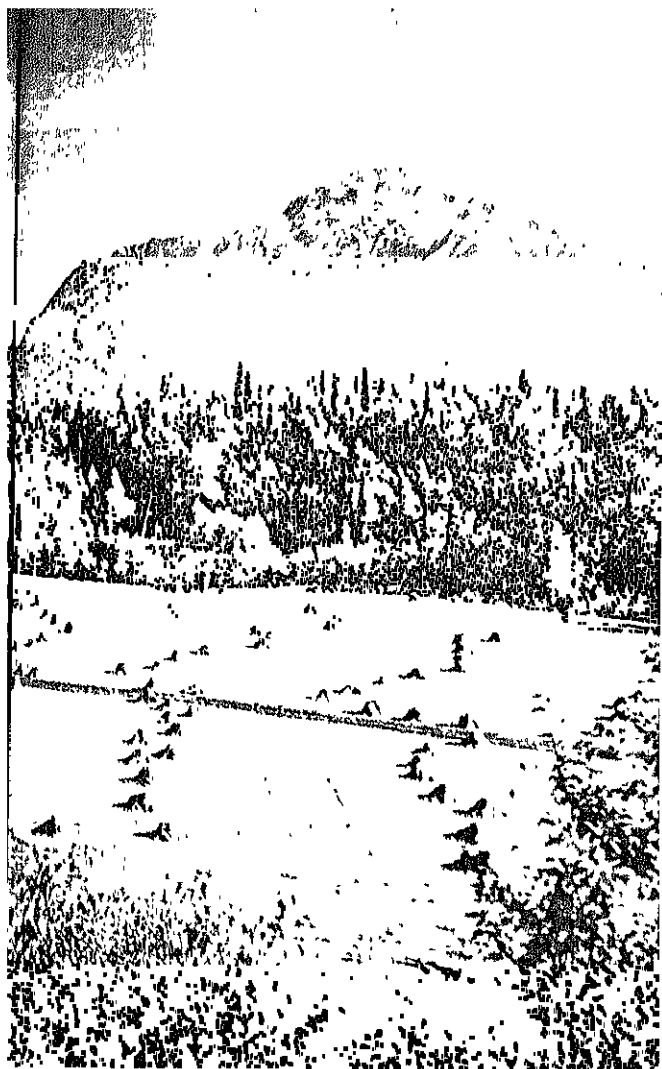
The old patterns of settlement and land development in Alaska are rapidly changing. Under the provisions of the Statehood Act, Alaska is permitted to select 103 million acres of public domain land—an area the size of California—over a 25-year period. As the State re-

ceives title to this land, it becomes available for sale or modified homesteading under a modern system of State laws and regulations. The Federal Government is also improving its methods of land distribution.

### *Agriculture*

Alaska's long hours of summer sunlight are adapted to the growing of many varieties of vegetables and cereals. Principal crops are potatoes, lettuce, carrots, celery, and cabbage. Dairy products comprise about half of the commercial farm production and poultry accounts for about one-tenth.

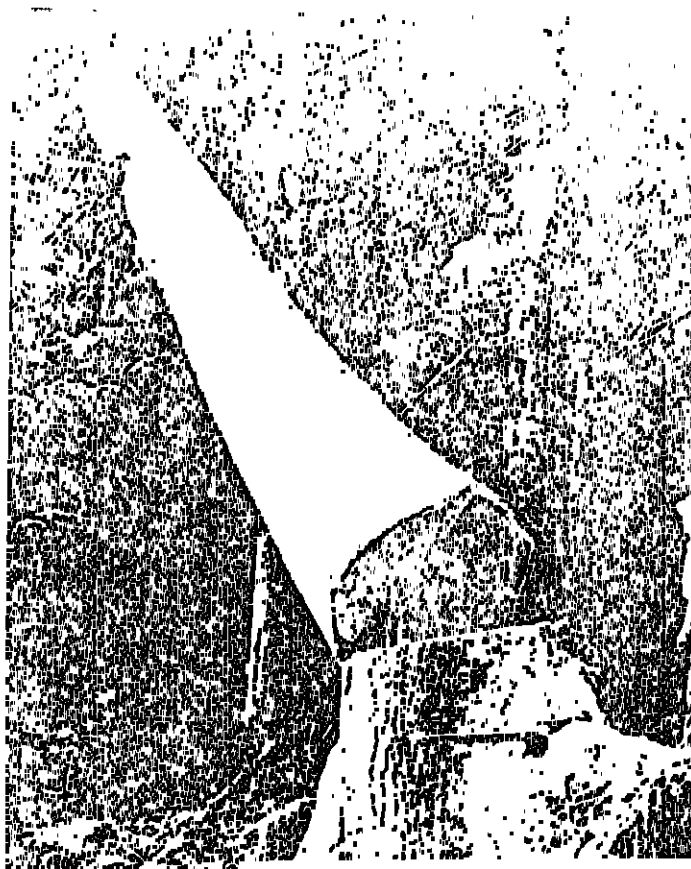
Farming areas in southeastern Alaska are small and scattered, usually being located on



the deltas of creeks or rivers. A large proportion are dairies or poultry ranches. Because of heavy precipitation, crops that ripen in Central Alaska such as tomatoes, squash, and cucumbers cannot be grown on the southern seaboard in spite of a 172-day growing season.

In the Matanuska Valley, northeast of Anchorage, about 8,000 acres are under cultivation producing dairy products, meat, poultry, eggs, and vegetables. Potatoes and garden vegetables are leading crops in the fertile Matanuska Valley farming region.

The Tanana Valley, near Fairbanks, is second in importance to the Matanuska Valley area in agricultural production. Small grains grow well in the interior. Hardy wheats have been introduced from Siberia, and much experimental work



(Left) Once a wilderness, the fertile Matanuska Valley now produces 70 percent of Alaska's farm income and contains over half of its cultivated land. (Above) A giant Sitka spruce plummets to the ground; forest products rank second only to Alaska's fisheries.

has been carried out. Intense heat plus long daylight hours makes farming successful in the Tanana Valley and in other interior locations favored with fertile soil.

Agriculture in Alaska is in its infancy. Only 8 to 10 percent of the State's food requirements are produced locally. The rest has to be shipped from other areas. In 1965 there were 380 farms with an acreage of 900,000—820,000 acres in grazing lands and 80,000 acres of land in farms. Value of livestock on farms was \$2,556,000.

The annual value of agricultural production was around \$3 million in the 1950's, rising to \$4 million in the 1960's. Farming development has been encouraged by an agricultural extension service, a farm loan program, and several agri-

cultural research stations. By the second half of the 20th century soil surveys and classification had covered 1,900,000 acres.

### *Homesteads*

During the 65 years that Alaska has been open to homesteading, much has been written about land free for the asking and about the glamour of carving a home out of the wilderness. Most of the information is either false or exaggerated. Here are a few statistics from a recent study:

	<i>Number</i>	<i>Acres</i>
Homesteads proved up and patented	3,253	394,000
Homestead entries filed but not patented	6,895	846,000
Homesteads now being used for agriculture (Area under cultivation)	400	80,000 26,000
Homesteads being used solely for residence	1,000	130,000
Patented homesteads not being used for agriculture	1,000	130,000

This means that only 4 percent of all homesteads attempted and only 12 percent of all homesteads patented are being used for farming—the purpose intended under the Homestead Act. Only about 33 percent of the persons who applied for homesteads were able to fulfill the requirements and get title to the land.

What causes these failures? In the first place, homesteading in Alaska is tough. Land suitable for farming is indeed limited. Isolation and high costs are also barriers. Lack of sound information still leads to many a misguided venture. These are just a few of the reasons.

Proving up a homestead is not the only way to acquire title to public domain land in Alaska. Land is also transferred to citizens, to organizations, and to communities in the townsites, native allotments, homesites, headquarters sites, small tracts, trade and manufacturing sites, recreation and public purposes sites, and similar tracts.

### *Forests*

Roughly 33 percent of Alaska's land is forested but only 27 percent, or 32,800,000 acres is classed as commercially productive. Lands in the interior support 106 million acres of forests, while coastal stands cover less than 6 million

acres. Yet, of the 225 billion board-feet of sawmill timber in Alaska, 82 percent is in coastal forests.

Distinctly different types of forest grow in the two zones. The interior forests are a part of the boreal, or far northern forests of the continent. They are generally concentrated along the vast river systems of central Alaska. The coastal forest is a northern extension of the Pacific Northwest forest with its most western limit around Kodiak, Alaska. Most of the coastal forest area is within the National Forests.

Dense stands of hemlock and Sitka spruce in coastal Alaska are seldom continuous over large areas or watersheds. Instead they are interspersed with rugged, mountainous slopes, muskegs, lakes, streams, and stands of unmerchantable timber. Western hemlock is the predominant species, making up approximately 61 percent of the stand, while Sitka spruce accounts for another 34 percent. Other species include Western red cedar and Alaska cedar, also called yellow cedar.

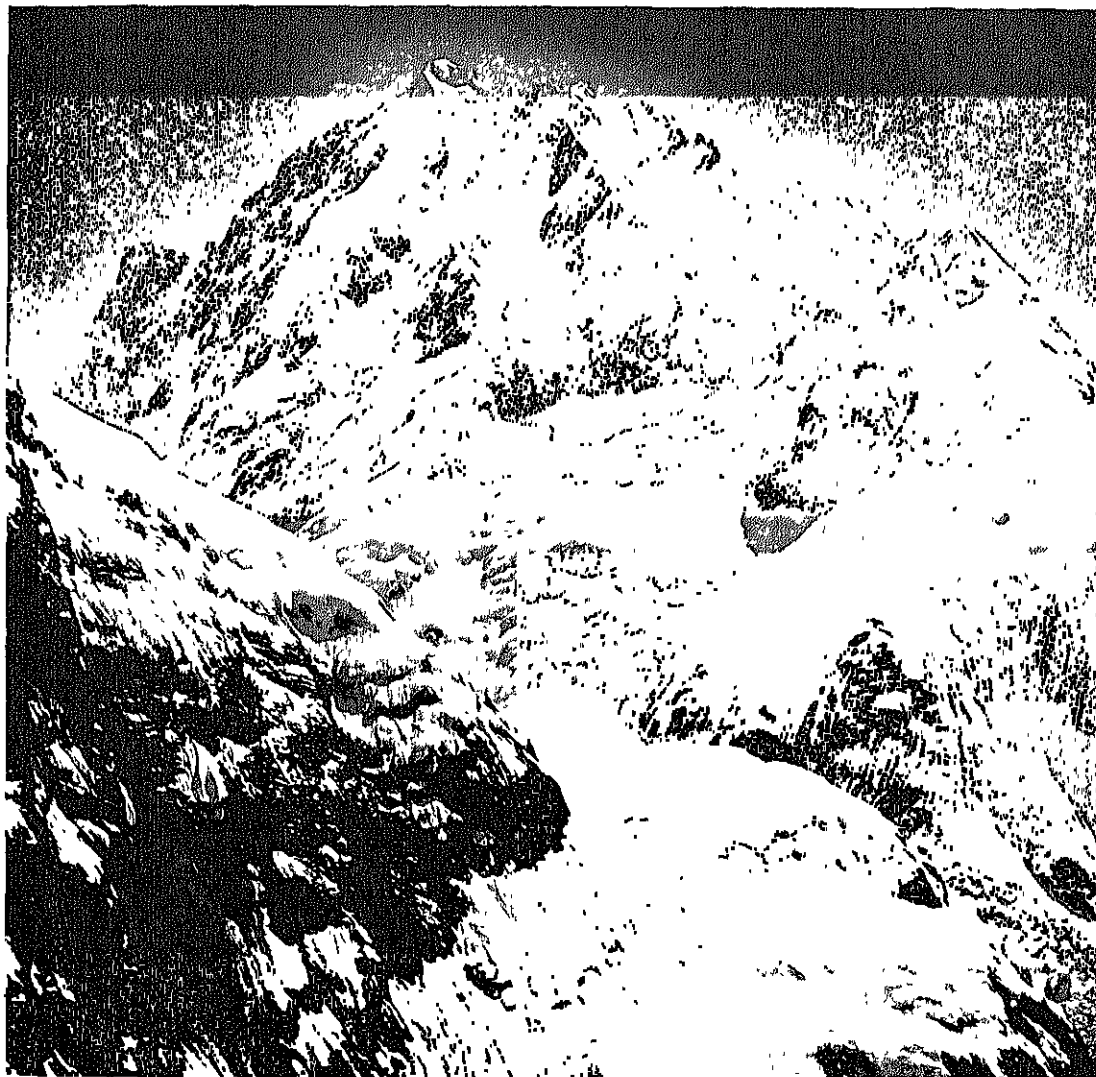
In the interior, white spruce-birch forests, frequently mixed with aspen, extend northward from the coastal mountains to the Arctic tundra. The best of these stands occur on the lower slopes of the river valleys, such as the Copper, Matanuska, Susitna, Kuskokwim, Tanana, and Yukon, and their main tributaries.

Dwarfed black spruce forms dense thickets on boggy flats and muskeg. Other species of no present commercial timber value include quaking aspen, balsam poplar, willow, and tamarack.

More than 99 percent of the timber cut on National Forest lands comes from the Tongass National Forest in Southeast Alaska, the State's wettest region. Precipitation at Ketchikan, for example, averages 152 inches a year, while the annual mean rainfall at Juneau is 83 inches, which is fairly representative of Southeast Alaska. In this cool and wet climate, the timber stands yield approximately 35,000 board feet per acre. It is estimated that a 110-year-old second growth timber stand will yield 65 to 80 thousand board feet per acre. Eighty percent of the timber cut from the Tongass is used for the production of pulp. The annual cut is about 500 million board-feet.



# Programs of Federal Natural Resource Agencies



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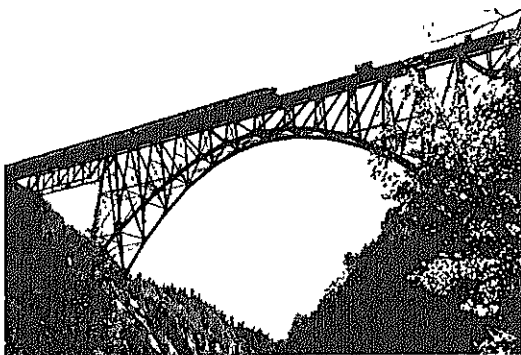
The natural resource functions of the Federal agencies represented in this booklet are extensive and detailed and are only briefly described. Additional information can be obtained by contacting the offices noted in the following programs section.

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## The Alaska Railroad

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The Alaska Railroad—pioneer in freight transport.

In accordance with a 1914 Act of Congress, The Alaska Railroad has been aiding in the development of Alaskan natural resources and helping in the logistic support of the Alaskan defense establishment for half a century. In a ceremonial sense, the Alaska Railroad was completed in 1923. In reality, it was not completed until it was rehabilitated to modern U.S. railroad standards after original track and equipment wore out during World War II.

The Alaska Railroad is owned by the United States and operated by the Department of the Interior. It is now a \$125 million property with an annual gross income of about \$15 million. It had been self-supporting for many years until the great earthquake of March 1964—temporarily it is hoped—greatly increased operating costs and changed traffic patterns to the detriment of rail revenues.

The Alaska Railroad has 482 miles of main line track extending from the ice-free ports of Seward and Whittier—through the headquarters city of Anchorage—to Fairbanks, about a hundred miles below the Arctic Circle.

Seatrail service to Whittier from Seattle, Wash., and from Prince Rupert and Vancouver, British Columbia, has been a major recent development. Freight cars from many States are now commonplace throughout the Alaska railbelt. The Alaska Railroad has been a pioneer in the development of containerized freight, and in modern freight-handling methods. Since

April 1963, the railroad has been subject to the economic regulation of the Interstate Commerce Commission.

### *Earthquake Damage*

The Great Alaska earthquake of March 27, 1964, destroyed Alaska Railroad property valued at more than \$25 million. Most of the damage occurred on the southern end of the line from Anchorage to Whittier and Seward. Port facilities at Whittier also were extensively damaged. At Seward, a combination of earthquake-caused slides, seismic waves, and burning oil from ruptured petroleum tanks destroyed dock and yard facilities.

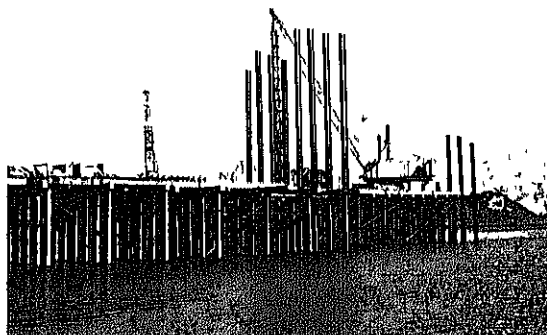
Alaska Railroad officials and employees began restoration work almost immediately after the quake. Within a week passenger service was restored between Anchorage and Fairbanks. Within a little over 3 weeks the first post-earthquake freight rolled slowly out of Whittier. And in May 1964, the railroad carried more tons of freight than in the same month a year earlier.

More information on the operation of the Alaska Railroad can be obtained from the General Manager, The Alaska Railroad, Post Office Box 7-2111, Anchorage, Alaska, 99501.

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## U.S. Army Corps of Engineers

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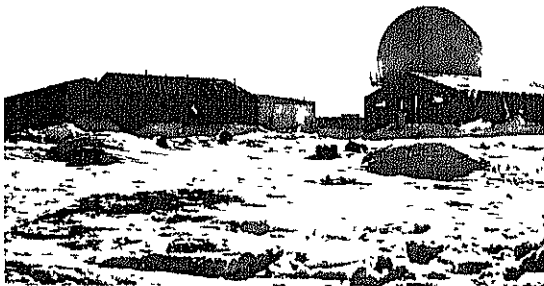
Construction of the Alaska Railroad dock at Seward.

Studies of the water resources of Alaska were launched in 1869 by the U.S. Army Corps of

Engineers. When stable communities started emerging on the northern frontier in 1911, the Corps undertook civil works projects

The civil works program of the Corps accounts for a \$25 million investment in harbors, flood control projects, and navigation channel work. Currently, the Alaska District of the Corps is building a harbor for small boats at Sitka and is restoring and enlarging the harbors of Homer, Seward, Valdez, and Cordova. Flood control work and hydroelectric projects are under study.

The Corps is completing a huge earthquake repair and reconstruction program as the engineering agency of the Office of Emergency Planning, and is assisting the Alaska State Housing



A remote military station built by the Corps.

Authority in development and construction of urban renewal projects for redevelopment at heavily damaged locations. The work includes the actual rebuilding of public facilities at Seward, Valdez, and sections of Anchorage destroyed by the 1964 earthquake, or by landslides and seismic sea waves caused by the March 27 earthquake. Some rebuilding is being done at Seldovia and Homer because of earthquake-caused land subsidence.

The Corps provides Federal assistance to the State and local agencies in flood emergencies. In fighting floods caused by ice jams, such assistance may take the form of blasting open a channel through the jam.

The Corps is also the construction agent for the Army and Air Force in Alaska. This assignment consists of a \$30 million annual program currently underway, dating from 1941. Total construction value of the network of defense is close to \$1.5 billion.

Multiple-phase activities of the Corps have

stimulated the growth of Alaskan communities such as Anchorage, Fairbanks, and Big Delta. The Corps virtually founded the Alaska construction industry.

Further details on authorized Corps projects are available in the brochure, "Water-Resources Development by the U.S. Army Corps of Engineers in Alaska," which may be obtained from the District Engineer, U.S. Army Engineer, District Alaska, Post Office Box 7002, Anchorage, Alaska, 99501.

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## U.S. Forest Service

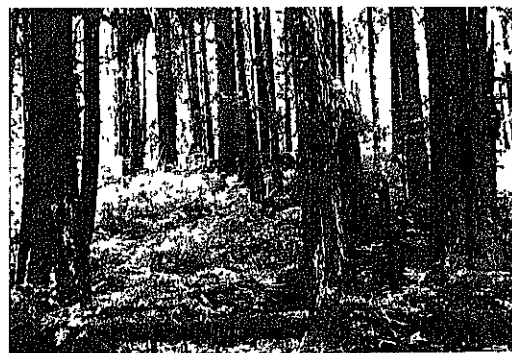
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National Forests in Alaska occupy nearly 21 million acres of south-central and southeastern Alaska. Besides managing the two National Forests, the Department of Agriculture's Forest Service carries on cooperative programs with the State Forester in the management, protection, and market development of timber resources on State and private forest lands.

### *National Forest Administration*

The Tongass and the Chugach—the Nation's largest National Forests—are administered by Forest Supervisors and their staffs under the direction of the Regional Forester in Juneau.

The Tongass National Forest, which encompasses more than 16 million acres covering a narrow mainland strip and almost all of the southeastern archipelago, has two administra-



Tongass National Forest comprises 16 million acres.

tive units. The South Tongass unit is supervised from headquarters in Ketchikan; the North

Tongass unit, from headquarters in Juneau. The Forest Supervisor and his staff for the Chugach National Forest, which encompasses more than 4 million acres in the Prince William Sound, Afognak Island, and Kenai Peninsula areas, has headquarters in Anchorage.

Ten District Rangers administer areas ranging in size from 700,000 acres to 4½ million acres. Each District Ranger is responsible for on-the-ground multiple-use management of natural resources.

For the period 1961 to 1972, Forest Service

Good progress in meeting these planned accomplishments is being made.

### *State and Private Cooperation*

There are 3,435,000 acres of land in State and private ownership and an additional 15,672,000 acres that the State has applied for under the provisions of the Statehood Act of 1959. Between 1959 and 1984, the State can select 104 million acres from the Federal lands of Alaska. The State Forester will soon be responsible for an area larger than any now under protection in any other State. Already he has 19,107,000 acres under protection.

The Regional Forester of the Forest Service cooperates with Alaska's State Department of Forestry and the Bureau of Land Management in providing technical and financial assistance in fire prevention and control; insect and disease control; forest management; and development programs for rural areas and forest industries.

Most of the State Forester's programs present staggering problems. The forests of interior Alaska have extremely high fire hazard conditions during the spring and most of the summer. These are lands of low precipitation where summer temperatures of 90° are not uncommon. The State's timber economy is new, and industry is having economic problems in getting established in a new frontier so far removed from established markets.



A logger trims his tree in the early morning mist.

plans for Alaska include a timber cut of 1 billion board-feet annually; construction of 100 campgrounds and picnic sites; improvement and development of 11,000 acres of big game range; improvement of 550 miles of salmon streams and 10,000 acres of lakes; numerous erosion control and stabilization projects; doubling present efforts against forest fires; elimination of hazardous fuels on 19,000 acres; intensified detection of forest insects and disease that threaten damage and loss; construction of 471 miles of multiple-use roads and 45 miles of trails. Timber purchasers will construct an estimated 100 miles of roads costing approximately \$6½ million.

### *Research*

The Forest Service's Northern Forest Experiment Station, at Juneau, conducts a research program for both the coastal and interior forests of Alaska. The distinctiveness of these two forest types makes a logical division for the research. Within the coastal forest, studies are underway on the management of Sitka spruce and western hemlock; on the relationship of management activities within these stands to streamflow and soil stabilization; and on development of methods to control forest insect pests. Research for the interior forests concentrates on the management of white spruce, trembling aspen, paper birch, and cottonwood, and on the development of improved fire control methods.

Coastal forest research is concentrated at headquarters in Juneau. Active field studies are conducted at the Maybeso Experimental Forest approximately 40 miles west of Ketchikan on Prince of Wales Island. Here, emphasis has been on the regeneration and establishment of new stands following clearcut harvest of pulpwood. Associated studies in this experimental forest have been made on streamflow characteristics, sediment production, and water quality, particularly as they may be influenced by logging operations. Forest insect research looks for ways to combat the threat of damage posed by two severe defoliators—the blackheaded budworm and the hemlock sawfly.

The recently constructed Forestry Sciences Laboratory on the University of Alaska campus provides office and laboratory facilities for research on interior forest problems. Timber management studies have emphasized the measurement, growth, and yield of the principal commercial forest species.

Recently, the scope of activities has been broadened to include (1) studies of the ecological changes associated with the development of white spruce stands on river bottom sites, often the most productive sites, and (2) studies to determine factors that affect the growth of white spruce in Alaska's subarctic environment.

The Bonanza Creek Experimental Forest, approximately 25 miles from Fairbanks, made available to the U.S. Forest Service through a lease from the State's Department of Natural Resources, is used for timber management purposes and is the site for basic weather measurements useful for fire control studies. At the experimental forest, scientists study characteristics of natural fuels common to the interior forests—particularly the fast-burning mosses and lichens—and the relationship of the kinds and abundance of these fuels to weather conditions, as well as fire control methods and procedures.

The forest survey is an inventory of Alaska's timber resources. It defines their location, volume, quality, kind, growth, and use.

Additional information on Forest Service activities can be obtained from the Regional Forester, U.S. Forest Service, Post Office Box 1631, Juneau, Alaska, 99801.

## Fish and Wildlife Service



Moose calves are tagged for movement studies.

The Department of the Interior's Fish and Wildlife Service, comprising the Bureau of Sport Fisheries and Wildlife and the Bureau of Commercial Fisheries conducts fishery and wildlife programs of national concern, complementing the Alaska Department of Fish and Game's management of the State's fish and wildlife resources.

### *Commercial Fisheries*

The Biological Research Laboratory at Auke Bay just 12 miles north of Juneau, serves as headquarters for the Service's biological research program on commercial fisheries. Work on various fish and shellfish of commercial value is also conducted at seven field stations located at strategic points along more than 10,000 miles of coastline from Ketchikan to Bristol Bay.

Auke Bay is the site of the new Commercial Fisheries lab.

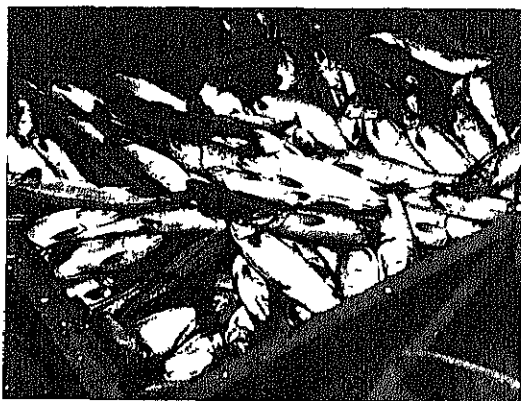


The long-range research program of the Laboratory is directed toward gaining knowledge of the physical, chemical, and biological factors that affect growth, survival, and distribution of the fish stocks. These data are then correlated with changes in abundance of the stocks to determine the optimum harvest that can be taken.

The research program of the Fish and Wildlife Service's technological laboratory located at Ketchikan is aimed at solving practical problems in the handling and processing of chilled, frozen, cured, and canned fishery products and in developing new, attractive products for the market. Included in the modern laboratory is a modern kitchen where dieticians perfect new recipes and develop new uses for fishery products.

### *River Basin Studies*

The river basin studies program conducted by the Fish and Wildlife Service is designed to evaluate the effects of water development projects



Salmon fishing is Alaska's leading industry.

ects on fish and wildlife, including in particular, hydroelectric installations. After sufficient information has been obtained both on the project and the involved fish and wildlife, special measures are planned to conserve and, if possible, to develop and improve these resources. These measures are recommended to Congress in the Fish and Wildlife Report in the case of proposed Federal projects, or to a Federal licensing agency, such as the Federal Power Commission,

in the case of privately constructed projects. The efforts of river basin studies will minimize the possibility of injury to the fish and wildlife resources, which remain one of Alaska's most valuable assets.

### *Other Programs*

The Fish and Wildlife Service maintains an exploratory fishing and gear research base at Juneau. Government and chartered fishing vessels explore Alaskan waters to locate and define new fishing grounds capable of providing commercial quantities of marketable fish and shellfish. Bureau personnel also design, test, and develop better, more efficient types of gear and equipment for the fishing industry.

Law enforcement and related activities are also conducted. These activities include: (1) enforcement of international fishery agreements and their implementing laws and regulations and (2) continuing surveillance of the growing foreign fishing activities in international waters off Alaska. Vessels, aircraft, and Service personnel cooperate with the U.S. Coast Guard in patrolling Alaska's long coastline.

Financial assistance to commercial fisheries is handled by the Office of Loans and Grants in Juneau. Loans are made to owners of fishing vessels and gear for financing and refinancing operations, maintenance, repairs, replacement, and equipment of fishing vessels and gear. The industry is presently seeking increased financial assistance for replacing old and inefficient vessels and engines, for adding more efficient gear, and for the improvement of methods for handling fishery products. Mortgage insurance is available to assist in the financing of the construction of fishing vessels. If the vessels meet certain criteria a construction-differential subsidy may also be available.

### *Fur Seals*

The Alaskan fur seals represent 85 percent of the valuable fur seal resource of the North Pacific Ocean. The animals come ashore on the Pribilof Islands in the Bering Sea, congregating there from May to October to breed and bear their young. The Fish and Wildlife

Service is responsible for the management and harvest of these animals.

The management program is a classic example of conservation in action. From a dwindling population of about 150,000 seals in 1911, the herd has increased to about 1½ million animals under the protection of treaties with Canada,



Fur seal harems at Little Polovina Rookery.

Japan, and Russia. In the past 10 years, harvest of males averaged 53,000 skins annually, the sale of the U.S. share bringing from \$¼ million to \$1½ million per year in excess of operating costs.

### *Migratory Birds*

The management and protection of migratory birds is the responsibility of the Fish and Wildlife Service in Alaska, though the Alaska Department of Fish and Game actively participates in research and enforcement programs. Game management agents are stationed in key population centers to enforce the provisions of the Migratory Bird Treaty Act, to provide information to the public and to conduct waterfowl banding and other studies.

Each year a survey of breeding pairs determines the status of ducks returning to Alaska. This is followed by a production survey to forecast the size of the fall flight of game ducks. This information aids in determining annual hunting regulations in Alaska and in the more southern part of the flyways. Over 8,000 waterfowl are banded annually in Alaska. This continuing project provides information on where and how heavily Alaskan birds are hunted. The Service cooperates with

the University of Alaska, the Alaska Department of Fish and Game, and other organizations in studies of birds.

### *Federal Aid Programs*

The State of Alaska uses Federal Aid funds allotted under the Dingell-Johnson Act and the Pittman-Robertson Act to restore fish and wildlife. The money is raised by a Federal excise tax on certain hunting and fishing equipment. Management and restoration are based on widespread investigations of sport fishing, big game and fur mammals, sea mammals, and game birds.

Other work in this program has been the stocking of vacant habitats with both fish and game, the spreading of fishing and hunting pressure, and the providing of public access to fishing areas. Effects of pesticides and logging operations on fish and wildlife have been studied. Work has also been done on ways to reduce wildlife damage to crops.

### *National Wildlife Refuges*

The National Wildlife Refuge System is composed of nearly 300 refuges distributed throughout 45 States. Seventeen refuges are in Alaska.



An abundant supply of ptarmigan awaits the hunter.

The Clarence Rhode National Wildlife Range and the Izembek National Wildlife Range are two major waterfowl refuges, providing nesting habitat and migration resting areas for Canadian geese, black brant, white-fronted geese, emperor geese, and a number of species of ducks.

Six other refuges, the Aleutian Islands National Wildlife Refuge, the Arctic National Wildlife Range, the Kodiak National Wildlife Refuge, the Kenai National Moose Range, the

Hazen Bay National Wildlife Refuge, and the Nunivak National Wildlife Refuge also provide important habitat for waterfowl.

The rare Aleutian Canada goose nests only in the Aleutian Islands National Wildlife Refuge,



Caribou grazing on the Arctic Wildlife Range.

and the largest of North American waterfowl, the trumpeter swan, nests on the Kenai National Moose Range.

Collectively, 12 refuges protect the major sea bird rookeries. They provide nesting habitat for literally millions of sea birds such as murre, puffins, auklets, gulls, cormorants, petrels, kittiwakes, fulmars, and pigeon guillemots.

The Kenai National Moose Range provides habitat for the Alaskan moose, Dall sheep, mountain goat, black bear, brown bear, as well as for fur animals and bird life typical of the boreal forest. The Kodiak National Wildlife Refuge is a well selected habitat for the brown bear and Sitka black-tailed deer. The Nunivak National Wildlife Refuge supports the only wild musk-ox herd in the United States. This nucleus herd now provides stock for other restoration projects in the State.

The Arctic National Wildlife Range, the largest national refuge, is one of the most magnificent wildlife and wilderness areas in North America, supporting an immense herd of caribou as well as Dall sheep, barren-ground grizzly, and moose.

The Aleutian Islands National Wildlife Refuge, center of sea otter abundance, has provided suitable environment for the restoration of this

highly prized marine fur bearer from near the vanishing point to a present population of over 30,000.

Six national refuges provide salmon spawning areas basic to the support of a segment of the salmon industry valued in excess of \$15 million yearly. Two refuges have an individual sport fishing potential greater than that of many States.

National refuges are operated under a multiple-use program. Timber harvest, grazing, and oil and gas extraction are undertaken on some refuges, so long as basic refuge purposes are not harmed. Public recreational use and associated development is also an active program on several areas.

Additional information on the activities of the Fish and Wildlife Service in Alaska may be obtained from the Regional Director, Bureau of Commercial Fisheries, Post Office Box 2481, Juneau, Alaska, 99801, or from the Fish and Wildlife Service, Department of the Interior, Washington, D.C., 20240.

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## Geological Survey

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Chackachamna Lake may one day produce power.

One objective of the Department of the Interior's Geological Survey is to complete geologic mapping for the entire State. The "Good Friday" earthquake of March 1964 brought into sharp focus one practical application of geologic mapping. Most of the damage in Anchorage was caused by landslides in areas underlain by unstable clay. The geologic map of Anchorage published in 1959 shows the distribution of this



unstable clay, thus aiding in understanding the causes of damage, and outlining for future builders those areas of potential instability.

Other detailed studies aim at outlining favorable areas for the occurrence of mineral deposits, and at establishing useful guides for prospecting. Some of the Survey's studies focus on problems in engineering geology, such as those concerned with permafrost and its effects on the stability of the foundations of buildings, roads, and airfields.

Earthquake seismology is the subject of intensive study to learn more about earthquake-induced landslides, submarine faulting which creates seismic sea waves, and secondary effects of earthquakes which cause subsidence or fissuring of the ground. All possible modern techniques are used in prognosticating earthquake possibilities.

### *Water Resources Investigations*

The Geological Survey also determines and describes the location, amount, and quality of the water resources of Alaska, on the surface and underground, in its natural state or under conditions of present or potential development and use.

The program consists of investigations and continuing data networks, both of which are planned specifically to obtain information needed to solve water problems related to supply, areal

tion with other Federal agencies, and in cooperation with State and local agencies.

Continuous streamflow records are collected at more than 100 gaging stations, and periodic flow measurements for special studies are made at nearly as many additional places. Ground water levels are measured regularly at 125 wells to monitor changes in underground storage. Information on the chemical quality, sediment content, and temperature of surface waters is collected regularly at about 15 stations and at additional places for special purposes. The raw data from these networks provide information on quantities, quality, sediment, and on day-to-day fluctuations which cannot be obtained by any other means.

Several areal and interpretive studies supplement and increase the usefulness of the network data in the development and management of the water resources. For example, at Anchorage all available data are being studied to provide information on which the city can base plans for developing additional supplies from streams and wells and for disposal of wastes. Other representative studies include the investigation of scour at bridges, special hydraulic and hydrologic studies of streams at selected sites, assistance to Federal and State agencies in exploration for ground water in areas where little is known of its potential, the occurrence and availability of ground water in permafrost areas, and interpretive studies of the chemical quality and sediment content of surface waters in population centers and other areas of special interest.

### *Topographic Mapping*

The Geological Survey is responsible for topographic mapping of the entire United States, including quadrangle mapping of Alaska at 1:63,360 scale (1 mile to 1 inch). Topographic maps provide valuable basic data for geologic and water resources studies; natural resource development and management; industrial and recreational development; highway planning; and related programs necessary to promote economic growth of the State.

The current topographic mapping program, consisting of 166,000 square miles of new mapping to be published at 1:63,360 scale will, when



The face of Mendenhall Glacier is over 60 feet high.

distribution, variability with time, quality, and floods. Much of the work is done in coopera-

completed, increase the total coverage of the State to 81 percent, or approximately 462,000 square miles.

Land across the State is presently covered by a series of 153 maps at a scale of 1:250,000. These maps are now being replaced by a topographic series prepared from large-scale quadrangles and from aerial photographs. To date, 80 maps of this series have been published, and an additional 55 are in preparation. The 1:250,000-scale topographic series should be complete by 1968.

### *Mineral Conservation Activities*

The Conservation Division's Branch of Mining Operations supervises prospecting and mining on public and Indian land in Alaska. Currently 34 coal leases, permits, and licenses covering about 49,700 acres are in effect, from which 709,109 tons valued at \$4,997,000, with royalties of \$95,077 to the Federal Government, were produced in a recent year. Coal from these operations is used principally for heating and electric generation in the Anchorage and Fairbanks areas.

Annual coal production from leased public lands rose gradually from 60,000 to 400,000 tons between 1920 and 1950. With completion of large plants for the military, demands grew rapidly until in 1953 a total of 865,000 tons was mined. Annual production remains in the range of 700,000-800,000 tons with some production from State lands.

The Geological Survey also supervises 6,188 oil and gas leases covering 11,589,150 acres of public lands, and 13 oil and gas leases covering 10,384 acres of Indian lands in Alaska. The value of the annual production from these leases exceeds \$34 million; the annual royalty returns are about \$3 million.

Ninety percent of the above royalties are distributed to the State of Alaska and 10 percent to the U.S. Treasury.

### *Mineral Classification*

The Survey's Branch of Mineral Classification has a regional office in Anchorage. Branch

geologists conduct on-the-spot investigations relating to the classification of lands, primarily for minerals leased by the Federal Government, and serve as geologic consultants. This office also reports potential mineral value of public lands to the Bureau of Land Management.

Longer term activities include an investigation leading to the evaluation and classification of the Bering River Coal Field, which contains the highest-grade coal in Alaska, an investigation of all lands possibly valuable for mineral leasing, and a review of the mineral potential of the Arctic Slope. Geologic examinations of possible dam and reservoir sites are also made.

### *Waterpower*

In connection with the classification of lands for waterpower purposes, a program of field investigations was started in 1947. These investigations include topographic surveys; geologic investigation of damsites and reservoir sites; and mapping. Following the field investigations, reports on waterpower potential are prepared, which serve as a basis for classification. Since the program was started, surveys have been made and maps published for over 30 streams and lakes; 22 reports placed on open file; 2 reports published as water-supply papers; and 5 as bulletin chapters.

Investigations thus far have covered sites near the population centers which are most likely to be considered for early development. The objective of the program is to complete all necessary field investigations and to prepare a reliable and thorough inventory of the waterpower resources of the State.

Additional information on all of these various programs can be obtained from the U.S. Geological Survey, Pacific Coast Area, 345 Middlefield Road, Menlo Park, Calif., 94025.

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## **Bureau of Mines**

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The major role of the Department of the Interior's Bureau of Mines in Alaska is to help evaluate and develop the State's mineral potential. Performance of this important mission

is often hindered by the very circumstances that make it so necessary. So much of this vast land is unmapped, even unexplored, that access to mineral deposits in remote areas is difficult. Whole regions lack highways, dirt roads, or



An engineer examines a nickel-bearing deposit.

even trails, and can be reached only by boat, by airplane, or by helicopter. An icy crust of permafrost, and the rigors of an arctic climate, frequently confound field investigations and make a special challenge out of what would be routine work in milder climates. Despite these obstacles, Bureau investigations in Alaska have contributed substantially to the vast amount of knowledge that industry will need in developing the State's wealth of mineral resources.

Other important functions, conducted in cooperation with the State of Alaska, include the gathering, compiling, and publishing of information on the State's mineral production and the promotion of safe and healthful working conditions in the mineral industries.

#### *Mineral-Resource Investigations*

Field studies by Bureau engineers working out of a headquarters office in Juneau are supplemented by laboratory investigations at Bureau metallurgy research centers in other States. For example, Bureau field investigations outlined a huge low-grade deposit of iron- and titanium-bearing minerals in southeastern Alaska, at a location favorable for year-round mining and shipping operations at low cost. The metallurgy research center at Albany, Oreg.

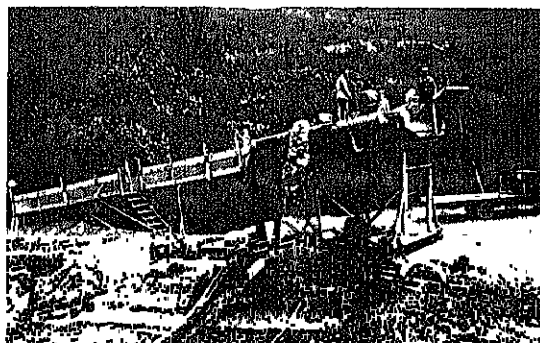
has developed technically feasible methods for upgrading the ores and recovering their metal content. Hence, this and similar deposits should ultimately become an important source of iron for Alaska and the Nation.

Other Bureau resource investigations, on the Seward Peninsula, have yielded information on Alaskan resources of tin and of the promising space-age metal beryllium. Mercury and mercury-antimony deposits in the Kuskokwim River Basin, copper deposits near Prince William Sound, and potential sources of lead-zinc-silver ore in the Yukon River region have been appraised. Many deposits of nonmetallic minerals—sources of the materials that will be needed to meet expanded construction programs—also have been evaluated by the Bureau.

#### *Minerals Research*

For nearly two decades before Alaska became a State, her extensive coal deposits were an object of Bureau research. Bureau field studies, aided by analyses performed in the Bureau's small laboratory at Elmendorf Air Force Base and by more detailed investigations at coal research centers in other States, helped to pave the way for development of reserves in the Matanuska coalfield near Anchorage. More recently, the Bureau's work indicated that reserves of subbituminous coal totaling more than 20 million tons in the Beluga River coalfield can be strip mined.

In northwestern Alaska, where over 80 percent

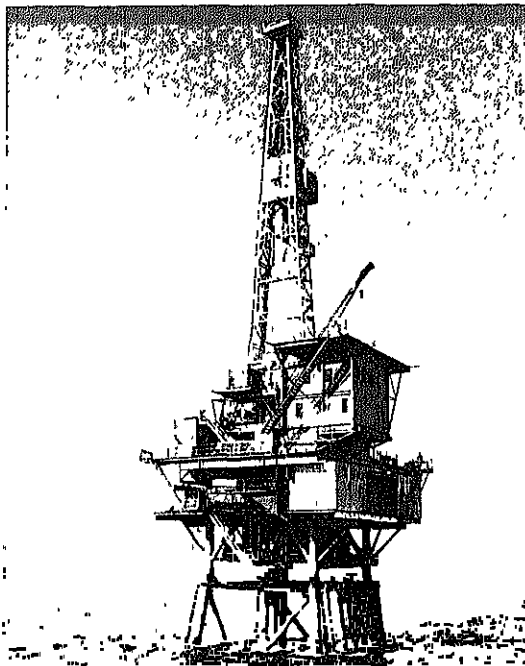


Gold is cleaned from a sluice box.

of the State's coal reserves occur, the Bureau has been sampling some of the outcropping

seams to determine their coking quality. Good metallurgical-grade coals are valued for steel-making and if they can be found in quantity development of the whole northwestern region would be greatly enhanced.

With industrial petroleum and natural gas operations increasing rapidly in Alaska, the Bureau's efforts have been directed not so much toward evaluating these fuel resources as toward prompt identification and solution of technical problems. Alaska's climate and topography pose their own unique barriers to offshore drill-



Oil was recently discovered in Cook Inlet.

ing and to the expanding exploration for oil and gas in the Far North. Bureau investigations are designed to help the industry surmount these difficulties and to advance the efficient development of Alaska's oil and gas resources.

#### *Branch of Statistics*

As part of the Bureau's nationwide function of collecting and disseminating statistics of the mineral industry, the Juneau office, in cooperation with the State Division of Mines and Minerals, collects, compiles and prepares for

publication the statistics of the Alaskan mineral industry. The annual Alaska chapter of the Bureau of Mines Mineral Yearbook (Volume III) is prepared from these data, as are the area reports.

Coincidental with the collection of mineral statistics, considerable information of general interest and value to the mining industry is accumulated. These data are organized and published from time to time. Some special studies are conducted in cooperation with the University of Alaska and other State or Federal agencies.

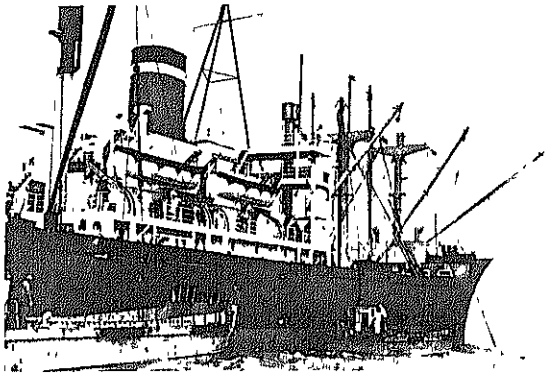
#### *Health and Safety Activities*

Promotion of safe, healthful working conditions in mineral industries has been a major Bureau of Mines responsibility since the Agency was created in 1910. In Alaska, the Bureau's health and safety activities are conducted from a field headquarters at Anchorage. This office makes safety inspections of coal mines, provides expert instruction in accident prevention and first-aid for mineral industry employees and officials, and, responds immediately to calls for assistance at mine rescue operations. Coal mine inspections are made in cooperation with the State of Alaska.

Additional details concerning Bureau of Mines activities in Alaska can be obtained from the Mineral Resource Office, Bureau of Mines, Area VIII, Box 2688, Juneau, Alaska, 99801.

## **Bureau of Indian Affairs**

The goal of the Department of the Interior's Bureau of Indian Affairs in Alaska is to assist Natives, both individuals and groups, in achieving economic and social self-sufficiency and full participation in Alaska's society. This goal is pursued through programs in economic development, education, employment assistance, welfare and social service, and tribal affairs. Despite a long record of public concern and a number of programs designed to help, most of the Natives



The North Star brings supplies to remote villages.

in Alaska—the same as Indians in other States—are at the bottom of the economic and social ladder. They suffer all the many ills that result from unemployment, low income, and poverty.

### *Economic Development*

To give more emphasis to economic growth, the Division of Economic Development was formed to bring all resource functions—forestry, land operations, realty, housing, and roads—into a closer working relationship with programs in credit and industrial and projects development.

In resource planning and development, the Bureau cooperates with other agencies within the Department of the Interior and with related Federal and State agencies. It has the unique responsibility to serve as trustee, advisor, and educator to the Native people and to represent them in plans and programs that affect their persons, lands, economy, and social well-being. The Bureau is working actively to stimulate a greater degree of involvement on the part of Indians and Alaskan Natives and to encourage their own efforts to gain economic self-sufficiency and responsibility as citizens.

One of the Bureau's 10 national area offices is in Juneau. There are field offices in Anchorage, Bethel, Nome, and Fairbanks to serve people in the surrounding areas. The southeastern Panhandle does not have a separate field office

but is administered from the Juneau Area Office. A liaison office is maintained in Seattle.

### *Education*

The Natives in Alaska were first educated by missionary groups, and later by both missionaries and the Federal Government. Progressively, as it was financially able to do so, the Territorial Department of Education extended its schools to include the larger villages. By the time Alaska achieved statehood, educational



BIA operates this day school at Hooper Bay.

responsibility had been assumed for about half of the school age children of Eskimo and Indian origin.

The Bureau of Indian Affairs continues to operate schools in the more isolated villages, primarily those in extreme western Alaska and north of the Arctic Circle where operations are difficult and costly. These are the areas where the schools must teach English as a second language and help bridge the difficult gap between the indigenous culture and life in the jet age.

At present 80 elementary day schools are operated in the villages. An elementary-junior high school program extends through the ninth grade at Wrangell Institute, a boarding school. Mount Edgecumbe, also a boarding school, provides 650 young people with a 4-year accredited, comprehensive high school education. The school program at Unalakleet extends

through the 10th grade and new high schools are being constructed at Kotzebue and Barrow, the two largest native communities in which the Bureau operates schools. The BIA will also provide a dormitory for students attending the new State Vocational School at Nome.

To attend high school, most students must leave their village. Each fall, in a massive airlift, approximately 1,500 students are taken from their villages to schools. Another airlift returns them home in the spring. Some attend BIA schools in Chemawa, Oreg.; others are provided vocational and university training in other States.

In addition to elementary education, in many villages special teachers provide adults with a variety of learning experiences consistent with their needs and desires. Eligible native high school graduates who desire to continue their education at the college level can secure scholarship aid from the Bureau.

#### *Employment and Welfare*

Funds are provided to help adult Natives obtain vocational training to qualify for jobs; and to develop employment opportunity for qualified Native people. Vocational counseling and guidance, and relocation of applicants to communities where training or employment is available, are among the services offered to approved applicants who voluntarily request assistance.

Branch of Welfare social workers administer a financial assistance program and provide case-work services to those who have economic, community adjustment, family, and other problems. Services are also extended to unwed mothers, children in need of protection, foster care, and special education because of blindness, deafness and other handicaps. Group work with families and communities is performed by Bureau staff. Aid is provided in obtaining services from other Federal and State operated welfare programs.

BIA also helps Native groups organize their villages under State and Federal laws. Technical guidance is also given with organizational

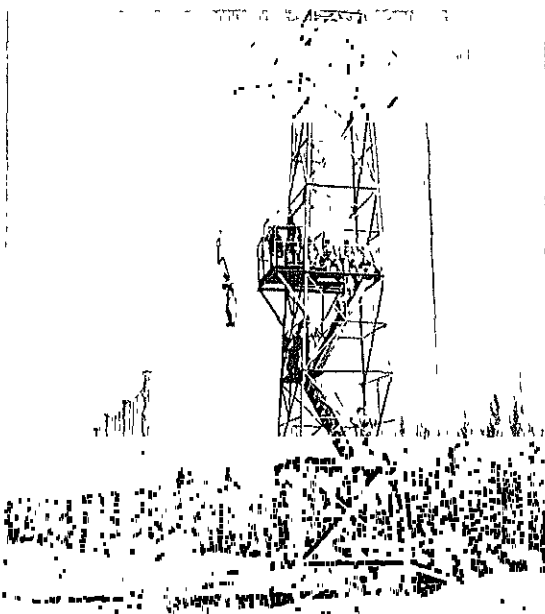
government and corporate functions including charters, ordinances, and resolutions.

Further information on these programs can be obtained from the Area Director, Bureau of Indian Affairs, Juneau Area Office, Juneau, Alaska, 99801.

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## **Bureau of Land Management**

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Smokejumpers train under BLM program at Fairbanks.

Multiple-use management of 279 million acres—three-fourths of the total area of the State—is the main responsibility of the Department of the Interior's Bureau of Land Management in Alaska. To carry out these management programs, the Bureau has offices in Anchorage for the State Director and one district. The other district and BLM's Smokejumper Center are headquartered in Fairbanks. Fire guard stations, mostly seasonal, are scattered through remote areas of the interior.

#### *Forestry and Fire Control*

Protecting our natural resources from wildfire is a tough job on an expanse of forest, range, and tundra twice the size of California. This task

has been assigned to BLM. During a quarter-century of slow progress, fire losses that once averaged a million acres a year have been cut to only a few thousand acres.

To help wage this never-ending battle, BLM has built its own smoke jumpers' loft and training center at Fairbanks. BLM uses a wide variety of aircraft, conducts prevention programs in the schools, trains native firefighters, and cooperates with other agencies in conducting fire research.

The Bureau also handles timber sales and free use permits. Annual cut from these sources is estimated to be only 1 percent of annual sustained yield production. Hence, most timber programs look to the future. BLM cooperates in preparing management plans, in taking forest inventory, in conducting insect and disease surveys, and in seeking better methods through modern research.

Planning for recreation on our wildlands, forests, and waters must keep pace with increasing travel and increasing public demand. Before Alaska's statehood, BLM had developed 50 campgrounds and picnic areas designed to help prevent forest fires started by careless campers. In 1959, most of these areas were turned over to the State Department of Natural Resources. BLM now maintains only six campgrounds. Its main recreation job is to help lay the framework for future development, to select sites of high recreation potential, and to make the necessary land withdrawals to protect choice areas from settlement and exploitation. Much of this long-range planning is done in cooperation with other agencies.

### *Lands and Minerals*

Through its Land Offices in Anchorage and Fairbanks, BLM handles more business than any similar office in the country. Alaska is one of the few places where homesteading is still possible. It is the only State that has a Townsite Trustee to help native villages and newborn communities gain legal title to lands they occupy. The total of all kinds of cases handled by the Land Offices has often exceeded 25,000 a year.

BLM also administers the general land grant

by which the State of Alaska, through a 25-year selection program, may acquire title to 103 million acres of public domain lands. As the State develops its own land program, business handled by BLM will decrease.

All official title and survey records for the public lands are maintained by the Bureau. These are among the most vital records of the State because they show the original transaction by which every private tract passed out of Federal ownership.

Revenues from oil and gas leases, mineral leases, land sales, rentals, grazing fees, timber sales, and similar sources run as high as \$10 million a year. Most of this public domain revenue comes from oil and gas leases, and 90 percent of it goes to the State of Alaska treasury.

### *Range*

Sheep, cattle, and horses graze nearly 2 million acres of public domain range under 70 BLM leases. The best areas are on Kodiak and the Aleutian Islands, and parts of the interior.

The Bureau's newest and most unusual range program is reindeer grazing. About 25,000 reindeer managed by Eskimos use some 8.5 million acres of public domain. Many of the reindeer herds are concentrated near Nome.

### *Cadastral Surveys*

To keep pace with the unprecedented demand for surveys required by the 103-million-acre State selection program, by public settlement claims, and by the needs of other Federal agencies, BLM in Alaska is engaged in an enormous survey program. Cadastral engineers must cover 4 to 5 million acres a year to complete the work on schedule. To speed the work, they use the latest in modern equipment: computers, electronic devices to measure distance, helicopters, planes, aerial photography, hoversights, and short-wave radio. In addition to land surveys, the Division of Engineering has charge of the design and construction work done by the Bureau.

Further information on BLM activities in Alaska can be obtained from the State Office, Bureau of Land Management, 555 Cordova Street, Anchorage, Alaska, 99501.

## Bureau of Reclamation



Each generator at Eklutna is rated at 15,000 kilowatts.

Participation by the Department of the Interior's Bureau of Reclamation in Alaska's development began in 1948 with the establishment of a planning office in Juneau. In 1952, the Bureau completed a reconnaissance report on the potential development of water resources for irrigation, power production, and other beneficial uses. Its activities have included the planning of hydroelectric developments to serve the power needs of much of Alaska, and the construction and operation of the Eklutna Project.

### *Interior-Army Agreement*

Federal responsibility for development of the Nation's water and related resources by statute and executive order are divided among several agencies, with primary responsibility for the development of water resources in the West lying with the Department of the Army and the Department of the Interior.

Recognizing that the sparse population and relatively undeveloped condition of Alaska presented a special situation—and an opportunity to increase the efficiency of Federal efforts in the resource development field—the Secretary of the Interior and the Secretary of the Army, in 1962, agreed to divide responsibility between their Departments. The aim of the two Departments is to assure the efficient planning, construction, and operation of Federal water resources projects and to make recommendations

for further developments. Because of its longstanding interest in all natural resource development in Alaska, the Department of the Interior provides leadership in undertaking comprehensive water and power studies. Consistent with its responsibility for marketing power produced at Federal hydroelectric projects, Interior also is responsible for the operation and maintenance of Alaska's completed hydroelectric power projects. The Corps of Engineers is responsible for designing and constructing Alaska's water resources projects, including hydroelectric power projects.

### *Eklutna Project*

This pioneer Federal hydroelectric facility in Alaska, completed in 1955, brings much-needed low-cost power to the booming economy of south-central Alaska. The Eklutna plant, located at the base of the towering Chugach Mountains, derives its energy from glacier-fed Eklutna Lake, approximately 850 feet above the two 15,000-kilowatt Eklutna generator units. A pressure tunnel  $4\frac{1}{2}$  miles long penetrates the mountain and pierces the bottom of the natural lake. A low dam, built in 1929 by private interests, provides additional storage and head. This dam which was damaged by the 1964 earthquake is being replaced by a new dam now under construction.

Firm power contracts with two REA's and with the city of Anchorage have provided the renowned Matanuska Valley and the bustling industrial area of Anchorage with dependable low cost power. Until the project suffered a multimillion dollar loss during the earthquake of March 27, 1964, it had maintained a promising record of reimbursement and was planning an early rate reduction.

### *Crater-Long Lakes Division-Snettisham Project*

This project was authorized for construction by Congress October 23, 1962, on the basis of studies by the Bureau of Reclamation. The project is near the mouth of the Speel River in southeastern Alaska near Juneau. It will have a capacity of 60,000 kilowatts and provide about 300 million kilowatt-hours of energy

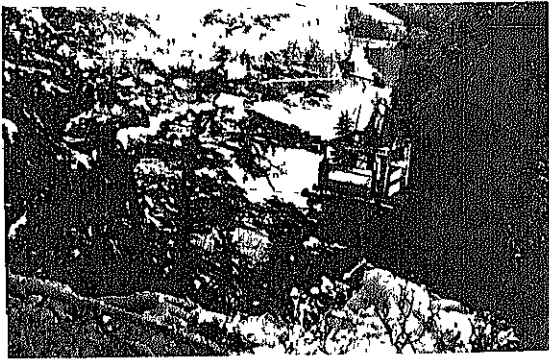


annually. The project will include transmission facilities to deliver power to the Juneau-Douglas area. Operation is expected to begin in late 1969.

### *Investigation Program*

The planning program of the Bureau of Reclamation in Alaska includes a comprehensive inventory of all hydroelectric potentialities in excess of about 3,000 kilowatts, investigation of individual projects to satisfy current urgent power needs of individual cities and local areas, and comprehensive planning of the long-range water and related resource development needs.

Alaska's hydroelectric potential totals about 18 million continuous kilowatts, including four great projects with capacities ranging from



Blue Lake Dam site

2½ million to better than 5 million kilowatts each. These projects are designed to aid Alaska's economic growth in the shortest possible time.

The program of comprehensive studies includes extension of the inventory of Alaska mineral, land, and forest resources. The studies include evaluations of the prospective long-term municipal and industrial development of Alaska, and evaluations of the requirements for hydroelectric power and for new municipal and industrial water supplies. The program also includes an appraisal of Alaska's possible long-term agricultural needs.

Additional information on these programs can be obtained from the Bureau of Reclamation, 226 Seward Street, Post Office Box 2567, Juneau, Alaska, 99801.

## Bureau of Outdoor Recreation



Alaska has tremendous outdoor recreation potential.

The Department of the Interior's Bureau of Outdoor Recreation administers a program of grants-in-aid to States and their political subdivisions for outdoor recreation planning, land acquisition, and development. This program, which requires States to match available Federal dollars, was authorized by the Land and Water Conservation Fund Act of 1965.

Moneys in the Fund derive from "pay-as-you-go" user fees and entrance charges at certain Federal recreation areas, from sale of surplus Federal real property, and a Federal tax on motorboat fuels.

Chief duties of the Bureau of Outdoor Recreation are to cooperate with the States, promote coordination in Federal programs, administer the grants-in-aid, and develop a long-range, continuing nationwide outdoor recreation plan based on State, Federal, regional, local, and private plans. The Bureau manages no lands or recreation facilities.

The Bureau provides technical assistance to Alaska in the statewide recreation planning which the State must have to qualify for the matching fund program. This plan will provide guidelines for future development by individuals, private organizations, cities, boroughs, and units of State government. The Commissioner, Department of Natural Resources, Juneau, Alaska, has been designated as a State liaison officer to work with the Bureau of Outdoor Recreation in State-Federal programs.

Additional information can be obtained from Regional Director, Bureau of Outdoor Recreation, Pacific Northwest Region, U.S. Courthouse, Room 103, Seattle, Wash., 98104.

## Federal Water Pollution Control Administration

Water pollution control is a function of the Federal Water Pollution Control Administration. The Federal policy in administering this important conservation program is one of leadership and assistance to the States, while at the same time holding that the States are primarily responsible for the control of pollution in their respective jurisdictions.

In Alaska, the Administration works with and through the State Department of Health and Welfare to prevent pollution of the abundant waters of this largest State. These two agencies, in turn, coordinate pollution control with programs of other State and Federal resource agencies.

### *Federal Aid Programs*

Federal assistance is both technical and financial. Federal Water Pollution Control Administration Grants to the Alaska Health and Welfare Department make up about 26 percent of the State's water pollution control budget; the grants are intended to encourage the State to step up its own pollution-control expenditures. The cooperating agencies hope that, as Alaska grows, it will be able to provide more adequately for water pollution control than its present budget permits.

Incentive grants to help communities build sewage treatment plants are another part of the program. Eight Alaska communities that applied for them—Bethel, College, Dillingham, Fairbanks, Juneau, Kenai, Nome, and Palmer—have received Federal grants totaling \$1.4 million. The communities have themselves put up \$4.5 million in local funds for these projects to control municipal water pollution.

Since statehood came to Alaska, its cities and towns have participated to a greater extent in this program; yet each year a sizable portion of Alaska's allocated funds for sewage treatment construction goes unused by its communities. Twenty-seven Alaska communities, having a combined population of 89,000, have inadequate treatment facilities to protect their local waters

or no treatment facilities at all. Nineteen of these discharge all community wastes entirely untreated. One-third of the 27 are as yet without sewage collecting systems.

### *Continuing Research*

Research, important everywhere in water pollution control, has special significance in Alaska because of the unique problems of waste treatment and disposal in the permafrost of the Arctic region and in areas of muskeg and high ground-water tables. In 1965 the Federal Water Pollution Control Administration opened a new water quality laboratory on the University of Alaska campus at College, Alaska. The laboratory staff, expected to number 100 at peak operation, will develop preventive measures to reduce pollution from mining, logging, and



Permafrost of the Arctic region poses a special problem

industrial processes tailored to Alaska's special needs. The new laboratory will play an important part also as a center for training of new manpower in the field of water supply and pollution control. Meantime, the Federal program continues its longtime support of research, as exemplified in a current \$31,000 grant for a study in "Dynamics of the Nitrogen Cycle in Lakes" at the University of Alaska.

Data on which to base water pollution control programs are urgently needed in any growing State. Therefore, as part of its water pollution surveillance system, the Federal Water Pollution Control Administration maintains two sampling stations in Alaska: one on Chena Slough near Fairbanks, one on Ship Creek at Anchorage. As the population, industry, and related water uses grow, other stations will be

added to the system to establish a continuing knowledge of the quality of Alaska's waters.

The Administration expects to develop for Alaska a comprehensive plan for water quality management. The plan will be coordinated with all other water and land-use programs and agencies. When completed, it will provide a blueprint for equitable and economic long-range use and reuse of the State's waters.

For further information about the Federal water pollution control program in Alaska write: Officer in Charge, Pacific Northwest Water Supply and Pollution Control Activities, Federal Water Pollution Control Administration, Room 570 Pittock Block, Portland, Oreg., 97205.

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## Soil Conservation Service

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The Soil Conservation Service of the Department of Agriculture provides technical and financial assistance to private landowners in Alaska through the State soil conservation district and through nine subdistricts.

The SCS cooperates with State and other Federal agencies in tackling Alaska's major land and water conservation problems. Conservation measures include streambank protection, erosion control, contour farming, strip-clearing of woodlands to provide for windbreaks, and construction of diversion ditches, grassed waterways, and ponds.

The SCS conducts soil surveys in cooperation with the University of Alaska. These studies help conservationists, farmers, and homesteaders choose the best of alternative land uses. Soil maps are widely used by land offices, tax assessors, real estate offices, and road departments.

Snow surveys, conducted by CSC conservationists, provide information on the available water supply for irrigation and power.

Additional information about resource development on private land in Alaska can be obtained from local soil conservation districts or from the State office of the Soil Conservation Service, Severns Building, Palmer, Alaska, 99645.

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## National Park Service

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Under a continuing long-range development and improvement program for all units of the National Park System, projects are under way or planned for the four areas which the Department of the Interior's National Park Service administers in Alaska.

Present plans for Mount McKinley National Park call for the expansion of overnight accommodations within the Park and of Morina Campground, and for the rehabilitation of heating and power facilities at the hotel. Future plans include visitor centers at the headquarters area near the Park entrance and at Wonder Lake, at the end of the cross-park road.

At Glacier Bay National Monument a new 12-unit, motel-type lodge, with lounge and dining room, and a utility system are being built at Bartlett Cove. They will be enlarged when the demand warrants. A cruise boat and boating and fueling facilities are planned as future projects.

At Katmai National Monument, new 10-unit cabin accommodations for visitors are scheduled for early completion at the Brooks River Campground.

Just outside Sitka National Monument, a new visitor center will be opened in 1965. Exhibits are now being built in cooperation with the Bureau of Indian Affairs. Possibilities for enlarging the monument by adding new areas having exceptional value are currently being studied. Some of the possible additions are already Registered National Historic Landmarks.

In addition, Erskine House on Kodiak Island, 40 miles across Shelikof Strait from Katmai National Monument, is being studied to determine its suitability as a national historic site. Studies are also being made of the potentialities of a beautiful wilderness lake area in western Alaska, which would be known as the Wood-Tikchik National Recreation Area.

Further details on the areas administered by the National Park Service in Alaska can be obtained from the Regional Director, National Park Service, 450 Golden Gate Avenue, Box 36063, San Francisco, Calif., 94102.

## The Future

*"One learns that the world, though made, is yet being made,  
that mountains long conceived are now being born, channels  
traced for coming rivers, basins hollowed for lakes."*

—John Muir

This is the story of Alaska—a story of change, progress, and challenge. The State which is indeed America's foremost frontier is endowed with one of the richest supplies of natural resources in the world, many of which are still virtually untouched.

Yet from their history, the people of Alaska

know the price of wanton exploitation and carelessness. Only sound conservation, wise use, and prudent development of its natural resources can insure a bright, prosperous future for the Great Land.

The Federal natural resource agencies continue to work with Alaska toward this goal.



## Acknowledgments

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## Other Interior Department Publications of Special Interest

State Natural Resource Series: Nevada, Massachusetts, Arizona, Ohio, West Virginia, Utah, Texas, (each \$.45), Colorado, Oregon, Montana, Washington, New Mexico, Idaho, (each \$.50), California, \$.60. "The Race for Inner Space," \$.55, "Quest for Quality," (in full color) \$1.00; "The Population Challenge," (in full color) \$1.25, Outdoor Recreation Grants-in-aid Manual (and amendments), subscription service \$4.00 (domestic), \$5.50 (foreign); "Reclamation Era," (published quarterly) subscription rates, \$.50 a year. "Federal Assistance in Outdoor Recreation," \$.20, 1963 Minerals Yearbooks—Vol. 1, Metals and Minerals (Except Fuels), \$4.50, Vol. 2, Fuels, \$2.50; Vol. 3, Area Report: Domestic, \$4.25, U.S. Wall Map, \$2.00; "Our Public Lands," (quarterly magazine), \$.60 annually; "Wildlife on the Public Lands," (in full color) \$.35, Waterfowl Tomorrow, \$4.00; Attracting Birds, \$.15, Shrimp Tips, \$.25, Take a can of Salmon, \$.25; "Vacationing With Indians," \$.30, "American Indian Calendar," \$.20, "Indian Affairs—A Progress Report," \$.15, Answers to Questions about the American Indian, \$.20; Colonials and Patriots, \$2.75; Parks for America, \$.525, Geology of Mt. Rainier National Park, \$1.75; A Primer on Water, \$.35; A Primer on Ground Water, \$.25; "Lake Powell, Jewel of the Colorado," (in full color) \$.75.

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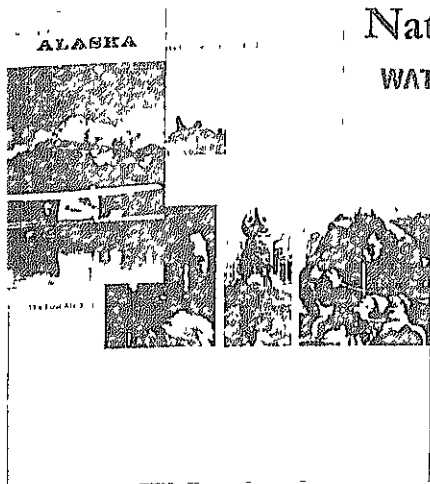
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(Front cover) Bunco Lake and Mt. McKinley. (Inside front cover) Totem pole near Sitka. (Back cover) McHugh Creek south of Anchorage.

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